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DEPT. OF ECOLOGY

Comments and Review of A/O by Barbara Stuhling

June 5, 1997

Roger Nye
DOE
3190 160th Ave. S.E.
Bellevue, WA 98008

Subject: A/O # 97TC-N122

Marianne Deppman, Ecology's Public Involvement Specialist, indicated to me that written public comments on the A/O could be in question form and that Ecology would answer these questions. The following are my comments in the form of questions, and I look forward to receiving answers:

1. 1. [In Ecology's publication called the "Public Participation Plan" (attachment #1), DOE indicates this ground water study is one condition which must be met before the "airport expansion project" can take place. Is the "airport expansion project" the reason you have entered into an A/O with the Port of Seattle?] 1
2. 2. [In a letter dated April 14, 1997 Roger Nye, the Project Coordinator, states this ground water study is "simply....a study that is appropriate to CONFIRM what the known ground water data seems to indicate". (attachment #2). When the Project Coordinator states the A/O is to CONFIRM the known ground water data, isn't the process flawed before it's even started? Would Ecology consider replacing Mr. Nye with another employee who has no past connection with Port activities?] 2
3. 3. [In WAC 173-340-600 it states the public must be involved in "the early planning and development". (attachment #3). According to Ecology's presentation at the first public meeting, the project has been under way for two years. Would Ecology be willing to return to the planning table and rewrite the A/O with public participation at the outset?] 3
4. According to MTCA, "An A/O shall not contain a covenant not to sue, or provide protection from claims for contribution or provide eligibility for public funding of remedial actions". (attachment #4). 4. [Is the A/O written so as to shield the Port from an action such as an appeal? Why not keep the usual appeal process open?] 4

5. As you will note from the above four questions, this commentor is skeptical of the intent of this A/O. The public is eager to participate in a project which will study the known, on-going contamination of the soil and ground water at the airport and a program to clean it up. But, we are not interested in being used by the Port for ulterior motives (i.e. to approve another runway). 5[Will you rewrite the A/O and emphasize that the thrust of this ground water study is first and foremost to clean up the negative environmental impacts of 50 years of airport activities?]5

6. If the public had been asked to participate, from the outset, in writing this A/O (as mandated by MTCA), the area of contamination to be studied would not be limited to 1/2 square mile of airport property and out to another 1/4 mile in certain instances. 6a[Will you rewrite the A/O and widen the area to be studied? Many contaminated sites exist outside the AOMA.]6a[If the cost is a factor, shouldn't Ecology acknowledge that to do a token type study now, will only necessitate a future study which might, indeed, be very, very costly both economically and healthwise. Also, is it amusing or infuriating to be told "costs.....would be prohibitive" when the Port has plans to build the most expensive runway in the USA.]6b

7. 7[Mr. Nye mentioned in the first public meeting that there are 70 known UST's on airport property. Will you rewrite the A/O to include all UST's? The "Public Participation Plan" says Ecology will look at them for compliance. This is a vague statement and will you rewrite it to be more specific?]7 (attachment #5).

8. 8[The A/O mentions 4 sites known to have contaminated the upper layer of the aquifer. According to Mr. Nye's memo of August 30, 1995, "the shallow regional aquifer has been impacted by hydrocarbon contamination in SIX locations"]8 (attachment #6)

9. 9[Will Ecology include in this study: (attachments #7 and 8)

1. Fire Dept. (3 UST's)
2. Paint shop
3. Auto shop (2 UST's)
4. Maintenance Building Yard
5. Supply/Loading Dock Area (2 UST's)
6. Boiler Room and Cooling Towers (2 UST's)
7. Conveyor Shops
8. Engineering Yard/Building
9. Contractor Staging Areas
10. Hazardous Materials Storage Area
11. Weyerhaeuser UST's
12. Postal Service UST's
13. Lagoon sludge area

From the list of 12 sites provided in the A/O it is unclear if the above mentioned sites are included. 9

10. Regardless of the final outcome of the A/O, ¹⁹Will Ecology request that the Port release funds to clean up the 6 known sites above the aquifer which are contaminating its waters? ¹⁰The upper and middle layers of the aquifer are connected. (Attachment #9)

11. ¹¹Will the A/O be revised to indicate that besides a flow to the west, there is a flow beneath. No matter what the flow, it is known that the "flow" has reached Des Moines Creek because all the reaches of the Creek are contaminated with oil and grease? ¹¹ (Attachment #10).

12. ¹²Tha A/O mentions the impracticality of drilling because of taxiing aircraft. Does Ecology realize that one runway can be closed at night? The Port repaves and works on runways continually with minimal hazard to people or planes. ¹²

13. Does Ecology understand the history of the Port when it comes to modeling? For example, the Port's noise model (WITH LIMITED INPUT) "proved" noise is decreasing even with a great increase in jet operations. ¹³The water flow model (WITH LIMITED INPUT from only the AOMA area) will prove what? To put it simply, we request that DOE look at the whole facility - where the oil is and where it is going and how to clean it up. ¹³

14. The fuel distribution system is a major culprit in contamination of soil and water at the airport. Ecology has already established this fact. (Attachment #11). ¹⁴Will Ecology, regardless of the final outcome of the A/O, assure the airport communities that the contaminated soil and water already identified be cleaned up? ¹⁴Each day thousands of gallons of fuel are poured through this aging fuel distribution system and as the years go by, the dangers of migration of this leakage to the aquifer are magnified. There are modern detection devices made for fuel pipes which include a computerized system of electronic monitoring points with updated information every few seconds. (Attachment #12). ¹⁴Would Ecology recommend new lines and a new leak-detection system be installed? I understand the airlines did a one-time test on their piping not long ago, but this is inadequate over the long range, don't you think? ^{14b}

15. ¹⁵Does the Dept. of Transportation regulate pipelines? (Attachment #13). Should the DOT be a part of this study? ¹⁵

16. ¹⁶Mr. Nye stated at the public meeting that jet fuel is thick, moves at a slow pace, and he isn't as worried about it as gasoline. Why then does the State demand the individual home owner (under MTCA) clean up his oil tank, the soil, etc. ^{16a}Should not Sea Tac Airport have to comply with the same regulation? ^{16b}It is disconcerting to hear Mr. Nye state that each site will be

analyzed as to how risky it is. One analyzing consultant who is environmentally friendly would recommend remediation and another consultant who is business (Port) oriented would recommend no action, is that correct? ^{16b} I fear your agency may have forgotten its role as protector of the environment, and, instead, only feel the pressure from the Port to protect business interests. In short, ^{16c} the community would ask Ecology to put less emphasis on figuring out the "flow" and more emphasis on the importance of cleaning up the KNOWN sites which continue to contaminate the soil and water with hazardous substances. ^{16c}

17. ¹⁷ Ecology's "Public Participation Plan" for the ground water study describes the airport this way:

1. 24.6 million passengers annually
2. 388,000 tons cargo annually
3. 5 billion dollars in trade
4. 17,000 employees

Would Ecology add the following to the description:

1. the number of passenger cars traveling to and from the airport annually
2. the number of trucks carrying air cargo goods traveling to and from the airport annually
3. the number of service trucks traveling annually
4. the number of gallons jet fuel pumped (well over 1,000,000 million gallons a day)
5. daily amount of sanitary waste from airport dumped in Des Moines Sewer Plant
6. daily amount of industrial waste handled each day ¹⁷

18. Pan Am Fuel Farm Site (in the AOMA). On July 13, 1992 the Port listed its proposal to clean up this site - including tank removal, aviation fuel removal and removal and disposal of material off-site. (Attachment #15). On July 22, 1992 the Port stated backfill would be with "imported fill material, (Attachment #16). On July 23, 1992 the Port stated that there would not be excavation of contamination of soil or treatment or same. (Attachment #17). DOE disagreed. (Attachment #18). And ¹⁸ neither the Port nor Ecology has answered my request for the quarterly monitoring reports for this site. (Attachments #19 and #20). Are you and the Port still studying the clean-up options? (Attachment #21). In 1991 contamination had reached at least 23 feet. And I would think that it continues to migrate towards the aquifer. ¹⁸

Thank you for allowing me to comment and ask questions about the A/O.

Barbara H. Stuhling
24828 9th Pl. S., Des Moines, WA 98198

Attachment #1

(see map in Appendix A), and nearby surface water bodies: Bow Lake, Des Moines Creek, and Miller Creek.

The second phase of the study will be described in an addendum to the Agreed Order and will include work needed to complete additional investigation activities. These activities will include drilling additional groundwater monitoring wells that could be used to verify Phase I results and to perform additional groundwater monitoring and/or investigation work.

The findings from the ground water study will be published in a report. Information from the study may be used by the parties conducting cleanups at the Airport and could provide a basis for a consistent approach to cleanup actions within the AOMA.

The ground water study is one condition the Port must meet to maintain state environmental certification of the Airport expansion project.

Pollution Prevention

The pollution prevention activities outlined in the Agreed Order are intended to enhance current pollution prevention practices at Airport underground storage tank and pipeline facilities by using a strategy of evaluating, implementing and monitoring measures that could be taken to prevent future releases of contamination to soil and ground water. These activities will be conducted by both Ecology and the Port.

The actions outlined in the Agreed Order include:

- ◆ Working with the owners and operators of Airport fueling facilities to improve leak detection and leak prevention measures. Such measures could include: tank tightness testing, pipeline tightness testing, internal tank inspection, corrosion protection, fuel inventory control procedures, installation of automatic tank gauging equipment, continuous pressure monitoring and best management practices.
- ◆ Inspecting all underground storage tank (UST) systems at the Airport for compliance with Washington's Underground Storage Tank Regulations.
- ◆ Creating a database of all UST systems at the Airport. This database will be updated annually using information provided by owners and operators of Airport fueling facilities.
- ◆ Annual reporting to Ecology on the status of all UST systems at the Airport.



Attachment #2

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

Northwest Regional Office, 3190 - 160th Ave S.E. • Bellevue, Washington 98008-5452 • (206) 649-7000

April 14, 1997

Barbara H. Stuhring
24828 9th Place S.
Des Moines, WA 98198

Dear Ms. Stuhring:

This letter is in response to your letter of 3/24/97.

There will be a Fact Sheet mailed out to the public at large (you are on the mailing list) concerning the groundwater study at SeaTac Airport sometime in April or early May. This fact sheet should answer your four questions, so please be patient until then.

Let me make a comment concerning the newspaper article. The article characterizes DOE officials as being "worried". I'm not sure who the reporters talked to but it wasn't the project manager (me). The current data concerning the groundwater at SeaTac Airport indicates there is no threat to drinking water supplies or nearby surface water bodies from groundwater contamination at the airport. The groundwater study is simply a more comprehensive scientific study that is appropriate to confirm what the known groundwater data seems to indicate.

If you have questions regarding this project after you receive the Fact Sheet, please contact Marianne Deppman (the public information specialist concerning this project) or myself. Thank you for your interest.

Sincerely,

A handwritten signature in cursive script, appearing to read "Roger K. Nye".

Roger K. Nye
Toxics Cleanup Program, NWRO.

Attachment #3

specific criteria whether a proposal is eligible for funding. The only circumstances under which mixed funding can be approved by the department are when the funding will achieve both:

(a) A substantially more expeditious or enhanced cleanup than would otherwise occur; and

(b) The prevention or mitigation of unfair economic hardship. In considering this criterion the department shall consider the extent to which mixed funding will either:

(i) Prevent or mitigate unfair economic hardship faced by the potentially liable person if the remedial action plan were to be implemented without public funding; or

(ii) Achieve greater fairness with respect to the payment of remedial action costs between the potentially liable person entering into a consent decree with the department and any nonsettling potentially liable persons.

(4) Funding decision. The department may have informal discussions on mixed funding. If a potentially liable person is found to be eligible for mixed funding, the director shall make a determination regarding the amount of funding to be provided, if any. This shall be determined at the discretion of the director and is not subject to review. A determination of eligibility is not a funding commitment. Actual funding will depend on the availability of funds.

(5) The department may recover the amount of public funding spent on investigations and remedial actions from potentially liable persons who have not entered into a consent decree under this chapter.

For purposes of such cost recovery action, the amount in mixed funding attributed to the site shall be considered as remedial action costs paid by the department.

[Statutory Authority: Chapter 70.105D RCW. 90-08-086, § 173-340-560, filed 4/3/90, effective 5/4/90.]

PART VI—PUBLIC PARTICIPATION

WAC 173-340-600 Public notice and participation. (1) Purpose. Public participation is an integral part of the department's responsibilities under the Model Toxics Control Act. The

(1/26/96)

department's goal is to provide the public with timely information and meaningful opportunities for participation which are commensurate with each site. The department will meet this goal through a public participation program that includes: The early planning and development of a site-specific public participation plan; the provision of public notices; a site register; public meetings or hearings; and the participation of regional citizens' advisory committees.

(2) Criteria. In order to promote effective and meaningful public participation, the department may determine that public participation opportunities in addition to those specifically required by chapter 70.105D RCW, or this chapter, are appropriate and should be provided. In making this determination, the department may consider:

(a) Known or potential risks to human health and the environment that could be avoided or reduced by providing information to the public;

(b) Public concerns about the facility;

(c) The need to contact the public in order to gather information about the facility;

(d) The extent to which the public's opportunity to affect subsequent departmental decisions at the facility may be limited or foreclosed in the future;

(e) The need to prevent disclosure of confidential, unverified, or enforcement-sensitive information;

(f) The routine nature of the contemplated remedial action; and

(g) Any other factors as determined by the department.

(3) Public notice. Whenever public notice is required by chapter 70.105D RCW, the department shall at a minimum provide or require notice as described in this section except as specified for the biennial report in WAC 173-340-340.

(a) Request. Notice shall be mailed to persons who have made a timely request. A request for notice is timely if received prior to or during the public comment period for the current phase of remedial action at the facility. However, the receipt of a request for notice shall not require the department to extend the comment period associated with the notice.

[Ch. 173-340 WAC—p. 45]

"Agreed order" means an order issued by the department under WAC 173-340-530 with which the potentially liable person receiving the order agrees to comply. An agreed order may be used to require or approve any cleanup or other remedial actions but it is not a settlement under RCW 70.105D.040(4) and shall not contain a covenant not to sue, or provide protection from claims for contribution, or provide eligibility for public funding of remedial actions under RCW 70.105D.-070 (2)(d)(xi).

"All practicable methods of treatment" means all technologies and/or methods currently available and demonstrated to work under similar site circumstances or through pilot studies, and applicable to the site at reasonable cost. These include "all known available and reasonable methods of treatment" (AKART) for discharges or potential discharges to waters of the state, and "best available control technologies" for releases of hazardous substances into the air resulting from cleanup actions.

"Applicable state and federal laws" means all legally applicable requirements and those requirements that the department determines, based on the criteria in WAC 173-340-710(3), are relevant and appropriate requirements.

"Area background" means the concentrations of hazardous substances that are consistently present in the environment in the vicinity of a site which are the result of human activities unrelated to releases from that site.

"Bioconcentration factor" means the ratio of the concentration of a hazardous substance in the tissue of an aquatic organism divided by the hazardous substance concentration in the ambient water in which the organism resides.

"Carcinogen" means any substance or agent that produces or tends to produce cancer in humans.

For implementation of this chapter, the term carcinogen will apply to substances on the United States Environmental Protection Agency lists of A

(known human) and B (probable human) carcinogens, and any substance which causes a significant increased incidence of benign or malignant tumors in a single, well conducted animal bioassay, consistent with the weight of evidence approach specified in the United States Environmental Protection Agency's Guidelines for Carcinogen Risk Assessment as set forth in 51 FR 33992 et seq. as presently published or as subsequently amended or republished.

"Carcinogenic potency factor" or "CPF" means the upper 95th percentile confidence limit of the slope of the dose-response curve and is expressed in units of (mg/kg-day)⁻¹. When derived from human epidemiological data, the carcinogenic potency factor may be a maximum likelihood estimate.

"Chronic reference dose" means an estimate (with an uncertainty spanning an order of magnitude or more) of a daily exposure level for the human population, including sensitive subpopulations, that is likely to be without an appreciable risk of adverse effects during a lifetime.

"Chronic toxicity" means the ability of a hazardous substance to cause injury or death to an organism resulting from repeated or constant exposure to the hazardous substance over an extended period of time.

"Cleanup" means the implementation of a cleanup action or interim action.

"Cleanup action" means any remedial action, except interim actions, taken at a site to eliminate, render less toxic, stabilize, contain, immobilize, isolate, treat, destroy, or remove a hazardous substance that complies with WAC 173-340-360.

"Cleanup action plan" means the document prepared by the department under WAC 173-340-360 which selects the cleanup action and specifies cleanup standards and other requirements for the cleanup action.

Attachment # 5

(see map in Appendix A), and nearby surface water bodies: Bow Lake, Des Moines Creek, and Miller Creek.

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- ◆ Inspecting all underground storage tank (UST) systems at the Airport for compliance with Washington's Underground Storage Tank Regulations.
- ◆ Creating a database of all UST systems at the Airport. This database will be updated annually using information provided by owners and operators of Airport fueling facilities.
- ◆ Annual reporting to Ecology on the status of all UST systems at the Airport.

ATTACHMENT #6

DEPARTMENT OF ECOLOGY

August 30, 1995

TO: Nancy Groves

FROM: Roger Nye

SUBJECT: Comments, Third Runway EIS for SeaTac Airport

The EIS indicates that there will be an estimated 30% increase in aircraft fuel usage by the year 2020. Based on current usage as indicated in the EIS, this would be 1,420,000 gallons of Jet A per day. Every day this much fuel have to move from the Olympic tank farm south of the airport to distant aircraft refueling locations.

Concerning the release of hazardous substances from fuel-handling facilities, the EIS indicates "the risk of operational impacts resulting from releases of hazardous substances will be minimized once existing facilities are upgraded to accommodate increased aircraft operations, fuel storage, distribution, and leak protection systems are modernized,...".

Existing operational fuel-distribution facilities at SeaTac Airport consist of three hydrant systems (underground tank farms with hydrant lines), and one truck refueling facility (rack). The hydrant systems are 30+ years old and have no cathodic corrosion protection. Although the hydrant lines have had "one shot" tests for leaks in recent years, none have ongoing leak detection capability for small leaks. A second truck refueling facility is planned, but the closing of one of the hydrant systems (NW Airlines) is also planned.

Releases from some of these hydrant systems and from other hydrant systems operated in the past are responsible for most of the subsurface contamination at SeaTac Airport. The shallow regional aquifer has been impacted by hydrocarbon contamination in six locations at the airport (not three, as the EIS indicates). These impacts have happened in spite of the 20-30 ft. thick near-surface blanket of till which does afford a high degree of protection for the shallow aquifer.

To accommodate future aircraft fuel requirements, a new modern fuel distribution system must be designed and constructed, rather than upgrades to existing systems. The construction of a new fuel distribution system would be a major component of the airport development alternatives. The construction of the new system would have to allow for the different alternatives, deal with myriads of existing piping systems and utility corridors, and have an ongoing leak detection system that will function in an environment of low level contamination.

**TABLE IV.21-3
PORT OF SEATTLE HAZARDOUS STORAGE**

<u>Location (Map ID) ^{a/}</u>	<u>Storage Vessel Type ^{b/}</u>	<u>Capacity</u>	<u>Material</u>
<u>Fire Department (1)</u>	UST	4,000 gallon	Diesel
	UST	4,000 gallon	Gasoline
	AST	4,000 gallon	Diesel
	AST	2,500 gallon	Fuel Oil
	Container	30 - 1 gallon	Antifreeze
	Drum	4 - 55 gallon	Motor Oil - Waste Diesel
<u>Auto Shop (2)</u>	AST	250 gallon	Waste Oil
	UST	2 - 8,000 gallon	Diesel
	UST	4,000 gallon	Gasoline
	AST	250 gallon	Motor Oil
	AST	50 gallon	Waste Antifreeze
	AST	250 gallon	Antifreeze
<u>Paint Shop (2)</u>	Container	300 to 400 - 5 gallon	Oils, Enamels, Solvent
	Container	35 gallons	Spent Paint Thinner
<u>Maintenance Building Yard (2)</u>	AST	20,000 gallon	UCAR Runway Deicing Fluid (ethylene glycol/urea)
	AST	10,000 gallon	Potassium Acetate
	AST	22,000 gallon	Potassium Acetate
	Tanker Trucks	2-2,000 gallon	Liquid Urea (winter only)
	Tanker Truck	4,000 gallon	Liquid Urea (winter only)
	AST	2,000 gallon	Diesel
	Drum	5 to 10 - 55 gallon	Cleaning Solvent, Bulk Oil, Asphalt Emulsion, Waste Gasoline (reused in 2-cycle engines), Waste Antifreeze (to be recycled)
	Container	4 to 8 - 20 gallons	Waste Solvents (to be recycled)
	AST	3,500 gallon	Urea
	UST	2,000 gallon	Diesel
<u>Supply/Loading Dock (3)</u>	UST	2,000 gallon	Diesel
	Drum	3 to 5 - 55 gallon	Hydraulic Fluid
	UST	1,000 gallon	Diesel
	UST	20,000 gallon	Bunker C
	UST	20,000 gallon	Bunker C
<u>Boiler Rm & Cooling Twrs (3)</u>	Drum	4 to 10 - 55 gallon	Sodium Molybdate, Sodium Hydroxide
	Drum	2 to 4 - 55 gallon in each area	Gear Box Oil
	Drum	4 to 6 - 55 gallon	Transformer Fluid (mineral oil)
<u>Conveyor Shop Areas (4)</u>	Drum	4 to 6 - 55 gallon	Herbicides, Paints, Concrete Additives
<u>Engineering Yard/Building (5)</u>	Drum	4 to 6 - 55 gallon	Herbicides, Paints, Concrete Additives
<u>Contractor Staging Areas (6)</u>	Drum	4 to 6 - 55 gallon	Herbicides, Paints, Concrete Additives
<u>Treatment Plant (7)</u>	AST	250 gallon	Diesel
	AST	300 gallon	Liquid Alum
	AST	15,000 gallon	Recovered Fuel from Lagoons
<u>Hazardous Materials Storage Area (8)</u>	Drums, Containers, and Boxes	various	various

^{a/} Storage locations shown on Exhibit IV.21-2.

^{b/} UST=underground storage tank, AST=above-ground storage tank

Source: Seattle-Tacoma International Airport Spill Prevention Control and Countermeasure Plan (Draft), Port of Seattle, 1995

(A) Port of Seattle Operations at Sea-Tac

As part of its day-to-day operations at Sea-Tac Airport, the Port of Seattle stores and uses hazardous materials, and generates and disposes of hazardous waste. Hazardous materials used by the Port are stored in seven underground storage tanks (USTs), 13 above ground storage tanks (ASTs), tanker trucks, drums, and containers at the following locations as shown in Exhibit IV.21-2:

- Fire Station - located just north of the North Satellite Terminal Building and west of Air Cargo Road;
- Auto Shop - located in the maintenance building which is north of the Fire Station and south of the United Airlines Maintenance Facility Building;
- Paint Shop - located in the maintenance building;
- Maintenance Building Yard - located immediately south of the maintenance building;
- Supply/Loading Dock Area - located in the main terminal building on the tunnel level;
- Boiler Room and Cooling Towers - the boiler room is located in the main terminal building on the tunnel level, the cooling towers are located immediately south of parking lot 5 on the south side of the main terminal;
- Conveyor Shops - one shop is located at the main terminal building, another shop is located at the south satellite, and the remaining conveyor shop is located at the north satellite;
- Engineering Yard/Building - located by the water tower just east of 160th Street;
- Contractor Staging Areas - one located southwest of IWS Lagoon 3, one located at Gate E-35 near the northeast corner of the field, two located north of the runways, and one located at the engineering yard;
- IWS Treatment Facility - located in the southwest corner of the Airport; and
- Hazardous Materials Storage Area - located in the southwest portion of the airfield near the IWS treatment facility.

Table IV.21-3 presents a summary of Port of Seattle hazardous materials storage at Sea-Tac. The hazardous materials storage area consists of two small storage buildings used to temporarily store hazardous materials and

waste generated by the Port. As of November 1994, materials stored at the hazardous materials storage area include those listed in Table IV.21-4.

Until recently, the Port of Seattle Fire Department has conducted annual fire fighter training at the burn pit located near the southwest corner of the Airport. Typically, such training occurred over a three-night period during November. Additionally, fire fighters from King County International Airport (Boeing Field) conducted annual fire fighter training at Sea-Tac. Typically, approximately 79 individual fires, lasting about 5 minutes each, were set and extinguished annually. Each fire consumed approximately 400 gallons of fuel that consisted of roughly 85% Jet A Fuel and 15% unleaded gasoline. Contaminated or waste fuel was not used. Fires were extinguished using 20 to 40 gallons of Aqueous Film Forming Foam (AFFF) that contains glycol foam (3%) and water. Use of the burn pit was suspended during 1995. A facility at Moses Lake, Washington, is planned to be used in 1996, and a permanent fire fighter training facility at North Bend, Washington, is anticipated to be in use in 1997.^{4/}

Port of Seattle operations at Sea-Tac generated 17,406 pounds of extremely hazardous waste and 77,098 pounds of dangerous waste in 1993. Extremely hazardous wastes include cleaning solvent, waste oil and freon, oil booms contaminated with toluene, waste gasoline, gas-soaked rags, and polycyclic chlorinated biphenols (PCBs). Dangerous wastes include crushed fluorescent lamp glass (fluorescent light tubes contain mercury), paint-related waste, runway rubber, oil booms contaminated with benzene (<500 parts per million (ppm) benzene), antifreeze and urea, sand blast residue, household hazardous waste (small quantities of various hazardous materials that cannot be combined with other materials for disposal), and ethylene glycol.^{5/}

^{4/} Mike Madella, Port of Seattle Fire Department, September 15, 1995.

^{5/} *Sea-Tac International Airport Pollution Prevention Plan Executive Summary*, Morse Environmental Managers, Inc., 1994.



Attachment #9

Serving the Southwest Metropolitan Area since 1948

July 27, 1995

CERTIFIED MAIL
Return Receipt Requested

Mr. Dennis Ossenkop
ANM-611
Federal Aviation Headquarters
Northwest Region, Room 540
1601 Lind Avenue SW
Renton, WA 98055-4056

Re: SeaTac Airport Master Plan - Update Draft EIS

Dear Mr. Ossenkop:

Highline Water District has some major concerns with regard to the potential improvements outlined in the SeaTac Airport Master Plan Update Draft EIS.

At the present time Highline Water District has production capability and is using 2.5 MGD of groundwater from the Highline intermediate aquifer. The District also hold water rights for an additional 15 MGD withdraw from the natural groundwater within the area.

The EIS document does not adequately define the aquifer system, and the system could better be defined by use of cross-sections based on well logs. The EIS indicates that fuel from the airport and auxiliary operations has contaminated both the shallow and intermediate aquifers in a number of locations. The contamination in these areas may, over the years, migrate into the aquifers being used by Highline Water District. If this were to occur, the contaminated potable water would become a health hazard.

In order to mitigate this existing health hazard, the contaminated groundwater and fuel must be removed. This removal should precede any expansion of the existing SeaTac facility and be made a prerequisite to issuance of any new permits for construction at SeaTac.

C:\PAT\KAH-EIS

22828 - 30th Ave. S. • P.O. Box 3887 • Kent, WA 98032 • 824-0375 / FAX: 824-0808

4.3 Surface Water, Groundwater, and Drainage

Des Moines Creek is designated as Class AA ("extraordinary") by the Water Quality Standards for Surface Waters of the State of Washington under WAC 173-201 (Parametrix 1992). The intent of this classification is to prevent further degradation of the creek. The creek currently does not meet some of the State Standards (WAC 173-201), primarily because the surface water quality has been degraded as urbanization has occurred in the upper portions of the watershed. Urban runoff from roads, parking lots and commercial establishments, demolition debris and garbage dumps, leakage from on-site septic systems, and lawn drainage have likely resulted in oil and grease, metals, fertilizers, pesticides, and other chemicals being introduced into the creek. This has resulted in nominal impacts to surface water quality (Herrera and Hall 1989).

Existing water quality studies of the Des Moines Creek (Stevens, Thompson, and Runyon 1974; Herrera and Hall 1989; and Parametrix 1992) indicate that during storm events, there are high fecal coliform bacteria counts, turbidity standards are violated, and high pH, zinc, and copper concentrations occur. In addition, concentrations of nutrients (phosphorus and nitrates) are frequently high, and violations of temperature and dissolved oxygen standards occur during summer (low-flow) conditions. Surface water temperatures can be raised by runoff discharged to streams such as Des Moines Creek from paved parking lots heated by the sun.

Sampling at 10 surface water stations (5 samples taken in the project area between S. 200th St. and Puget Sound) in and near Des Moines Creek in December 1991 (Parametrix 1992) showed violations of water quality standards for fecal coliforms throughout its length, and copper in at least one location south of S. 200th St. High pH and turbidity (although not exceedances) occurred in the upper reaches of the creek. Table 4-3 shows results from sampling station DC-6 upstream from the treatment plant. Chronic and acute ambient water quality standards were exceeded for copper and zinc in the upper reaches of the creek and in parking lot runoff from the Sea-Tac Airport tank farm. Chronic criteria are 4-day average concentrations that should not affect aquatic organisms unacceptably if they are exceeded no more than once every 3 years. Acute criteria are 1-hour concentrations that should not be exceeded more than once every 3 years (Parametrix 1992). Water quality generally showed improvements south of S. 200th St., although oil and grease were detected in all reaches of the creek. Nitrate concentrations were also elevated in a limited portion of the watershed in proximity to commercial golf courses (such as Tyee Valley Golf Course).

Accidental jet fuel spills from the Sea-Tac Airport in November 1985 (30,000 gallons) and April 1986 (5,000 to 7,000 gallons) have had more direct and extensive impacts to surface water quality and biota. Most aquatic life was destroyed by these events (Herrera and Hall 1989). Design and operating procedures at the airport subsequently have been implemented to prevent future accidents. Stream field surveys in 1989

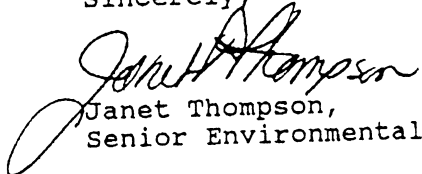
ATTACHMENT # 11

We continue to work with the Port and their tenants in their spill prevention, control and countermeasures planning. They are required to notify us of any spills. We ensure that their notification is timely and that all spills are appropriately cleaned up. Recently, we have noted much improvement in their response to spill events but we continue to monitor this closely because of the Port's history of difficulty in controlling their tenants activities in the area of spill reporting and response. The third runway proposal does not have an oil storage facility which would come under Ecology regulations.

Ecology has identified that most of the subsurface contamination at the airport has resulted from a 30+ years old hydrant system without cathodic corrosion protection. The EIS recognizes the need to upgrade and modernize the existing facilities. Staff will be discussing with the Port the components of a new modern fuel distribution system that would deal with the existing piping systems and utility corridors, and provide an ongoing leak detection system that will function in an environment of low level contamination.

We considered the shoreland issues to have been adequately identified and discussed in the alternatives. The necessary permits were identified along with mitigation measures. Again, if the project receives approval by decision-makers then Ecology will be working closely with the jurisdictions on the appropriate conditions.

Sincerely,


Janet Thompson,
Senior Environmental Planner

Lisa Zinner, Ecology
Barbara Ritchie, Ecology
Mike Rundlett, Ecology
Barbara Hinkle, Port of Seattle
Dennis Ossenkop, FAA

State concerned about pipeline leak detection

Staff and AP reports

RENTON — State officials are concerned about a pipeline-monitoring system that has failed to detect two small recent leaks in a line that carries oil products underground from Puget Sound-area refineries.

Twice in the past five months the system has failed to detect leaks in the 31-year-old, 400-mile pipeline operated by Olympic Pipe Line Co., which carries thousands of gallons of gasoline, diesel and jet fuel from Northwestern Washington refineries to Seattle, Tacoma and Portland.

The most recent leaks are small, less than 900 gallons combined, and both were spotted by outsiders soon after they occurred.

But they've caught the attention of state regulators, environmentalists and people who live along the

path of Olympic's proposed trans-Cascades pipeline. The cross-mountain line is planned to run from near Woodinville, through Snoqualmie Pass and Kittitas County, to Pasco. Besides constructing a pipeline along a 91-mile path through Kittitas County, Olympic plans to construct a fuel distribution terminal at Kittitas adjacent to Interstate 90. Fuel there will be loaded on to truck tankers.

Olympic Pipe Line Co.'s monitoring system can detect a leak as small as 630 gallons an hour and "is the best available" in the industry, said Bill Mulkey, environmental officer for Olympic Pipe Line.

That may not be good enough.

"We have a concern that (leak detection) is not as stringent as it should be," said Greg Sorlie, oil-spill manager for the state Department of Ecology.

The recent leaks "really raised our concern, and certainly the public's about pipeline safety," Sorlie said.

Mulkey, in a statement issued this morning, said one of the firm's main points, which didn't appear in the Associated Press story, was that the firm uses many ways to prevent and detect leaks.

"We certainly place the highest priority on this issue, because it is what makes us a successful business," Mulkey wrote. "While no transportation system is foolproof, we do our best to do what we do

best — provide a dependable, cost-efficient distribution for fuel to the motoring public, agricultural communities and the visitors in Washington State.

Mulkey said Olympic "does not and should not" depend 100 percent upon technology to detect all leaks. The firm's detection system includes a computerized system of more than 3,000 electronic monitoring points with information updated every five seconds. The firm also conducts constant aerial surveillance of the

has a system of property owner contact. Signs and markers are also part of the system as well as construction systems that prevent leaks.

The leak-detection system is expected to be an issue when the state Energy Facility Siting Council begins formal hearings on the proposed new line, council staff member Allen Fiksdal said. It is proposed that the cross-Cascade line will use the same detection system, and Olympic is planning to initiate even more detection systems than it has now for the new line. The Council will recommend to the state's governor in mid-1997 whether the pipeline should be built.

The 227-mile pipeline Olympic wants to build would cross miles of sparsely populated agricultural and national forest land en route from Woodinville to Pasco.

90 corridor through the Cascades, it would cross 156 rivers and streams, including the Tolt and Snoqualmie Rivers west of the mountains and the Yakima and Columbia rivers on the east side.

Olympic executives say they've continually upgraded their detection system. Within the past year they have added software to speed up analysis of pipeline flow readings and help operators detect leaks more quickly.

Federal officials say Olympic's spill record has been good compared with other pipelines.

The company — jointly owned by Texaco, ARCO and GATX Corp. — has run the 400-mile petroleum product pipeline linking refineries in northwestern Washington to Portland for more than 30 years. The line handles about 335,000 barrels of gasoline, jet fuel and diesel a day.

ATTACHMENT #13

Ms. Stuhring
Feb. 23, 1996
Page 3

The north fuel rack will be an additional pressure drain and will increase the volume of Olympic's pipeline system. The new pump is necessary just to maintain normal operating pressure in the lines. Although the pipelines within the airport are not required to do so, it is my understanding from Olympic Pipeline Co. that the old pipelines do, and the new pipeline will, meet DOT pipeline regulations.

As with any above-ground bulk fuel handling facility, there is a potential for surface spills. The design criteria for the north fuel rack must ensure that any potential spills are contained and there are no pathways to soil, groundwater, or surface waters.

Concerning your question about cleanup of the United/Continental site:

To date, remedial actions have included site characterization, installation of 21 shallow monitoring wells, product recovery from small wells, installation of two large-diameter recovery wells, installation of a deep test well, installation of bio-vent test wells, three exploratory borings, and spill-prevention upgrades to the active United tank farm. Over the next 2 years overexcavation, bioventing, further product recovery, further upgrades to the United tank farm, and sump replacement will take place. Groundwater monitoring will be required after that for at least one or two years, or longer.

I share your general concern for the environment at SeaTac Airport, and I hope that the above information addresses some of your specific questions and concerns.

Sincerely,



Roger K. Nye
Toxics Cleanup Program

Other References

American Petroleum Institute Bulletins:

No. 1604: "Removal and Disposal of Used Underground Petroleum Storage Tanks"

No. 2015: "Cleaning Petroleum Storage Tanks"

State of Washington, Department of Ecology, "Guidance for Site Checks and Site Assessments for Underground Storage Tanks" (February, 1991)

State of Washington, Department of Ecology, "Guidance for Remediation of Releases From Underground Storage Tanks" (July, 1991)

U. S. Environmental Protection Agency, Office of Underground Storage Tanks, "Musts for USTs - A Summary of the Regulations for UST Systems"

11. PROJECT DESCRIPTION

Give brief, complete description of your proposal, including the proposed uses and the size of the project and site.

The Port of Seattle's proposal for demolition of the Pan Am underground storage tanks is summarized in TABLE 1. Demolition and removal of the storage tanks will include the following activities:

Demolition

- a. Remove existing fence and posts within the limits of construction.
- b. Remove existing 4-inch and 8-inch Industrial Waste System (IWS) piping to allow for excavation of tanks.
- c. Remove existing induction floor loop detector back to existing door controller.
- d. Remove existing trench drain grate and storage for reinstallation.
- e. Remove existing protection bollard and storage for reinstallation.
- f. Install temporary shoring adjacent to the east 20,000 gallon fuel tank.
- g. Excavate Tank 10a. This tank contains approximately 17,600 gallons of saturated sand, and 2,300 gallons of aviation fuel.
- h. Examine Tank 10b. If this tank contains a similar mixture of saturated sand and aviation fuel, it will also be removed.
- i. Remove all contents from both fuel tanks, if necessary, decommission the tanks, and demolish, remove, and dispose of all material off-site. Excavated soil will be stockpiled until completion of tests by the Port of Seattle. The materials will then be removed from the site to an approved disposal site.
- j. Conduct a site assessment and related sampling of both tanks, if necessary, in accordance with WAC 173-360-385 through WAC 173-360-399, and Ecology's "Guidance for Site Checks and Site Assessment for Underground Storage Tanks." The Port of Seattle will analyze sampling results and determine whether the excavated

Attachment #16

12. Remove and disposal of tanks and all appurtenances in accordance with federal, state, and local regulations.
13. Backfill excavations with imported fill material.

Construction

1. Install 4-inch and 8-inch IWS piping removed during demolition.
2. Install induction floor loop detector.
3. Install concrete apron and drainage trench.
4. Reinstall trench grating.
5. Reinstall protection bollard.

PROJECT LOCATION:

The Pan Am aviation fuel tanks proposed for demolition are located between the Pan Am hangar and the Northwest Airlines hangar, near the south end of Concourse A at the Seattle-Tacoma International Airport. Seattle-Tacoma International Airport is located west of Highway 99 and south of Highway 518 in King County, Washington. The terminal building is located west of Highway 99, at approximately South 176th Street. Please refer to FIGURE 1.

LEAD AGENCY: Port of Seattle (SEPA File No. 92-16)

DETERMINATION: This environmental evaluation is being carried out pursuant to the provisions of Washington State Environmental Policy Act (SEPA) under Chapter 43.21C, Revised Code of Washington (RCW), Chapter 197-11, Washington Administrative Code (WAC), and Resolution 3028, Port of Seattle SEPA Policies & Procedures. As lead agency, the Port has determined that the proposal will not have a probable significant adverse impact on the environment. Therefore, an Environmental Impact Statement (EIS) is not required under RCW 43.21C.030(2)(c).

SUPPORTING INFORMATION: Information used to reach this determination, and applicable state laws and Port of Seattle policies, regulations, and procedures, are available for public review at Port of Seattle offices: (1) Engineering Department, Second Floor, Pier 66, 2201 Alaskan Way, Seattle; and (2) Aviation Facilities and Maintenance Department, Third Floor, Main Terminal Building, Seattle-Tacoma International Airport. Any questions relating to this determination or to the proposed action should be referred to Barbara Hinkle, Environmental Management Section, Engineering Division, Port of Seattle, P.O. Box 1209, Seattle, WA 98111, (206) 728-3193.

The Port evaluated four alternatives for remediation at the Pan Am Fuel Farm site. Those alternatives included:

- Alternative 1 Excavation of Contaminated Soils and Disposal at County Landfill A total of 7,000 cubic yards would be excavated from the site to a maximum depth of 23 feet. The soils, including the 500 cubic yards of previously excavated soils, would be loaded into dump-trailers and transported to the King County Cedar Hills Landfill. At the landfill, the soils would be disposed as petroleum-contaminated-soil (PCS). ✓
- Alternative 2 Excavation of Contaminated Soils and Off-Site Thermal Treatment A total of 7,000 cubic yards would be excavated from the site to a maximum depth of 23 feet. The soils, including the 500 cubic yards of previously excavated soils, would be loaded into dump-trailers and transported to a low-temperature thermal treatment facility. After treatment, the soils would be transported back to the site and used as backfill, or new imported backfill would be used.
- Alternative 3 Excavation of Contaminated Soils and Biodegradation Treatment A total of 7,000 cubic yards would be excavated from the site to a maximum depth of 23 feet. The soils, including the 500 cubic yards of previously excavated soils, would be loaded into dump-trailers and transported to a designated treatment site on airport property. After treatment, the soils would be transported back to the site and used as backfill.
- Alternative 4 No Action/Continued Groundwater Monitoring This alternative does not remediate any existing contamination at the site, but involves ongoing quarterly monitoring of groundwater from the existing monitoring wells at the site. The purpose of the alternative would be to demonstrate to the regulatory agencies that contamination from the site is not migrating into the water table.

Based on the results of the investigation, the Port of Seattle chose to pursue Alternative 4: No Action/Continued Groundwater Monitoring. The groundwater monitoring program will involve sampling of the three groundwater monitoring wells installed on the site in September, 1991, field screening and laboratory analysis of groundwater samples, and reporting of analytical results on a quarterly basis. *how many years*

In order to prepare the project site for the groundwater monitoring program, the Port of Seattle will undertake the following actions at the Pan Am Fuel Farm site: ✓

DEMOLITION

Steel Tanks

The top five (5) feet of the existing steel tank walls will be removed. The remaining portions of the tank walls and bases will remain in place and be covered with fill.

Attachment #18

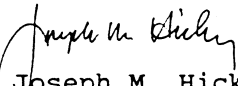
Ms. Stuhring
Page 2
October 15, 1992

So with that background, I will attempt to answer your questions:

1. The question "Why did you decide not to excavate..." is better asked to the Port and Pan Am, not Ecology. Ecology did not make that decision, and in fact that is the main issue I am working with the Port to correct. The soils apparently are too severely contaminated to remain, and unless Ecology can be provided with the documentation that it has been remediated, a formal cleanup may be necessary.
2. Above ground tanks (ASTs) are regulated under the jurisdiction of the local Fire Department or Fire Marshall. Please contact the Sea-Tac Fire Department for specifics. ASTs offer more protection from environmental harm, but less from fire and explosion.
3. The aquifer at Sea-Tac is generally considered to be quite deep below ground surface. This does not include perched aquifers which may accumulate seasonally at any depth. One would need to review files, which are available here at our office, to determine if the exact depths in feet are available.
4. Petroleum contaminated soil (PCS) is required to be cleaned up by the MTCA. Once it is excavated, it is a solid waste disposal or treatment issue which is regulated by the local Health Department, usually. Additionally, local permits pertaining to grading and filling may be required. PCS is sometimes stockpiled or treated on-site, but adequate steps should be taken to ensure no cross contamination results from the activity. PCS which has been treated satisfactorily may be reused as clean. Placing untreated or undertreated soil back in an excavation may result in re-contaminating the site, which would then again require cleanup through the MTCA.

Your request for Ecology to provide you with copies of quarterly monitoring results must be handled through our Central Files Section in this office. Please call 649-7000 and ask for Central Files. The quarterly monitoring results probably won't be available for some time, but presently there is other information in our files which may be of interest to you.

Sincerely,


Joseph M. Hickey
Tanks Unit Supervisor
Toxics Cleanup Program



Attachment #20

September 23, 1992

Ms. Barbara H. Stuhring
24828 9th Place S.
Des Moines, WA 98198

RE: Pan Am Underground Storage Tank Demolition
Port of Seattle SEPA File 92-16

Dear Ms. Stuhring:

The Department of Ecology is the main agency involved with the monitoring of this project.

To receive the results of the quarterly monitoring please contact Mr. Joseph M. Hickey at the following address:

Joseph M. Hickey
Department of Ecology
Northwest Regional Office
3190 160th Avenue S.E.
Bellevue, WA 98008-5452

Thank you for your letter and comments.

Sincerely,

A handwritten signature in cursive script, appearing to read "Barbara Hinkle".

Barbara Hinkle,
Environmental Management Specialist

BXH/wlm/5604E

P.O. Box 1209
Seattle, WA 98111 U.S.A.
(206) 728-3000
TELEX 703433
FAX (206) 728-3252

Pan Am fuel fees

Attachment #19



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

Northwest Regional Office, 3190 - 160th Ave S.E. • Bellevue, Washington 98008-5452 • (206) 649-7000

November 22, 1993

Ms. Barbara Stuhling
24828 9th Place South
Des Moines, WA 98198

Dear Ms. Stuhling:

I am responding to your letter to me dated November 8, 1993.

The Department of Ecology is not aware of any environmental monitoring activities conducted at the Pan Am Airlines facilities at Sea-Tac Airport.

A site manager for the Sea-Tac facility will be hired in the next few weeks. This person will oversee cleanup and monitoring activities at Sea-Tac Airport. I will direct the site manager to help answer your questions.

Please call me at 649-7134 if you need further assistance.

Sincerely,

A handwritten signature in cursive script, appearing to read "Ching-Pi Wang".

Ching-Pi Wang
Supervisor
Site Management Unit

CW:cw:bd

COMMISSION AGENDA

M. R. Dinsmore, Executive Director

April 30, 1997

Page 3

-FVO Shipyard - Fishermen's Terminal - some of the upland cleanup was completed by the Port in 1996. The tenant is scheduled to complete the remainder in 1997. Aquatic sediment cleanup requirements have not yet been identified by the Washington Department of Ecology (WDOE).

-Terminal 105 - during the construction of a fish habitat site, contamination by a former tenant was discovered and cleaned up. Regulatory agencies are evaluating the need for further cleanup.

-Terminal 115 - several areas of contamination have been discovered at the terminal. These are being monitored under state agency oversight to determine if cleanup is needed.

-Malarkey Property - the Port owns a small piece of waterside property on the Duwamish River adjacent to a site owned and operated by the Malarkey Asphalt Co. The Port's property might have been contaminated by these operations. The Port is studying the problem and coordinating closely with the Malarkey cleanup, which is being directed by the USEPA. Port costs should be reimbursable.

-Sea-Tac International Airport (Sea-Tac) Pan Am Fuel Site - the Port is considering a number of cleanup options for this property.

-Aircraft Fuel Farms and Fueling Systems at Sea-Tac - these facilities are owned and operated by the airlines. The Port is a PRP under the state Model Toxics Control Act (MTCA). A United Airlines-Continental site was remediated in 1996. In 1997, we anticipate the remediation of the Continental hydrant system. Also, Northwest will be closing its entire system and is expected to begin remediation.

-Groundwater Study - the Port and the Washington Department of Ecology (WDOE) have entered into an Agreed Order under MTCA to conduct a comprehensive groundwater study at Sea-Tac.

-Rental Car Sites - the Port is overseeing the remediation of two sites contaminated by rental car agencies.

-Industrial Waste Treatment Plant Conveyance System - the Port will conduct initial investigations to identify potential contamination and impacts.

One or more of the following actions must be performed on these sites:

-investigation of the nature and extent of contamination and cleanup alternatives costs

-investigation of the extent to which other parties are responsible for site contamination and their ability to pay

Response to comments by Barbara Stuhling

Comments were received in a letter dated June 5, 1997.

Comment #1:

The question is asked if the “airport expansion project” is the reason Ecology has entered into an Agreed Order with the Port of Seattle since the Public Participation Plan states that this groundwater study is one condition, which must be met before the “airport expansion project” can take place.

Response #1:

The comment is incorrect. The Public Participation Plan for this Agreed Order states that the groundwater study is one condition the Port must meet to maintain state environmental certification of the airport expansion project. The groundwater study does not have to be completed before the airport expansion project takes place. The state certification process required Ecology to specify several environmental conditions at the airport that the state expected the Port of Seattle to address in order to maintain the certification, and the groundwater study was just one of these conditions. The Agreed Order was entered into to accomplish a specific remedial action regarding historical contamination at the airport, not because of the airport expansion project.

Comment #2:

The Project Coordinator, Roger Nye, stated in a letter dated April 14, 1997 that the groundwater study is a study to confirm what the known groundwater data seems to indicate. This statement indicates the process is flawed, and Ecology should replace Mr. Nye with another employee with no past connection with Port activities.

Response #2:

The statement must be taken in the context of the referenced letter. That part of the letter was attempting to explain to the commentor that a newspaper article she had sent to Ecology was incorrect. The newspaper article had characterized DOE officials as being “worried” about groundwater contamination at Sea-Tac Airport, which is not correct. The statement was made in the context of providing reassurance that “worry” was not warranted because the known groundwater data at the airport does not indicate a threat exists, although additional studies are appropriate. This is factual information as documented in numerous reports, and the process is not flawed if the project manager knows about factual information.

Comment #3:

WAC 173-340-600 states that the public must be involved in “the early planning and development”. Since the groundwater study project has been underway for two years, Ecology should return to the planning table and rewrite the Agreed Order with public participation from the outset.

Response #3:

Response to this comment is provided in Part 1 of the Responsiveness Summary.

The comment is incorrect. WAC 173-340-600 does not state that the public must be involved in the early planning and development of cleanup actions under the MTCA. The referenced passage states that Ecology must engage in the “early planning and development” of a public participation plan in addition to other activities to accomplish the goal of providing the public with information and opportunities for participation. Public participation under the MTCA process does not provide for the public to be “at the planning table”, but does provide for a formal public comment period on cleanup actions once proposed. Response to public comments is provided and the Agreed Order is altered as deemed appropriate by Ecology. The Agreed Order will not be rewritten through a public consensus process.

Comment #4:

Questions are asked if the Agreed Order written so as to shield the Port from an action such as an appeal and why the usual appeal process is not kept open?

Response #4:

Ostensibly the “usual appeal process” mentioned in the comment refers to the process of citizen appeal to the Pollution Control Hearings Board. This citizen appeals process is not provided under the Model Toxics Control Act for any formal cleanup actions (Agreed Orders, Consent Decrees) in order that Ecology can move cleanup actions forward expeditiously as is often required.

Comment #5:

The Agreed Order should be rewritten to emphasize that the thrust of the groundwater study is first and foremost to clean up the negative environmental impacts of 50 years of airport activities.

Response #5:

Response to this comment is provided in Part 1 of the Responsiveness Summary.

Completing all cleanup at Sea-Tac Airport is a long-term process. The purpose of the Agreed Order is to accomplish a more immediate interim action to evaluate risk to receptors possibly posed by contamination in groundwater at the airport. Cleanup actions have been ongoing independently without direct Ecology oversight at the various known areas of contamination. These cleanup actions are being undertaken by different entities, are on different timelines, and have different situations of contamination to deal with. There has been sufficient progress on cleanup and Ecology has not elected to insert itself formally into these independent cleanup actions. The Agreed Order will remain focused and not be rewritten in an attempt to encompass all cleanup actions at Sea-Tac Airport, which would possibly require several Agreed Orders if Ecology ever had reason to do that.

Comment #6a:

The Agreed Order should be rewritten to widen the area to be studied because there are many contaminated sites outside the AOMA.

Response #6a:

Response to this comment is provided in Part 1 of the Responsiveness Summary.

The groundwater flow model will include a large area which encompasses Sea-Tac Airport in its entirety and a large adjacent area as well. The contaminant transport model will examine the transport of contamination from the AOMA by groundwater flow in this larger area. The AOMA is the specific area of the airport that includes the facilities known to and able to have contaminated the Qva aquifer, and includes the known contamination in the Qva aquifer. There has been no contamination at the airport outside the AOMA on Port property reported to Ecology that warrants an investigation of groundwater and inclusion in this study. The commentor is invited to provide Ecology with information regarding the “many” contaminated sites she knows to exist outside the AOMA at the airport.

Comment #6b:

If cost is a factor, Ecology should acknowledge that doing a token study now would necessitate a future study, which would be much more costly, both economically and healthwise.

Response #6b:

In general, cost can be considered as a factor in remedial actions when the cost of a remedial action is much greater proportionally than the environmental benefit derived from that remedial action. When particular remedial actions are directly required to prevent exposure to contaminants however, the remedial actions cannot be avoided simply because they “cost too much”. Cost is not a factor that will preclude the basic objectives and purpose of this study from being accomplished. As a result of this study, the hydrogeology and groundwater flow in the area of Sea-Tac Airport will be much better known, along with the behavior of contaminants in that groundwater environment. The work will not have to be done again, and Ecology does not consider that this is a “token” study. It is not clear why doing this study as proposed would necessitate a more costly future study. The results of the groundwater study could optimize future studies by identifying specific areas and / or provide information where work could be needed, thus lessening the cost of any future work.

The comment appears to imply that there will be adverse human health effects caused by the soil and groundwater contamination at Sea-Tac Airport if only this “token” study is done. The only direct exposure pathway to contaminated soil at the airport is that construction and environmental workers occasionally come in contact with it. It is the stated purpose of this study to evaluate the pathway and risk of possible human exposure to contaminants in groundwater at the airport. The study is an interim action to evaluate risk directly thus enabling specific mitigation steps to be taken if needed, rather than waiting on the long term process of cleanup to eliminate risk. Doing this study now best protects human health.

Comment #7:

It was mentioned in the first public meeting that there are 70 known USTs on airport property, and the Agreed Order should be rewritten to include all USTs. Furthermore, the Public Participation Plan states that Ecology will look at these USTs for “compliance”, which is a vague statement that should be rewritten to be more specific.

Response #7:

It is unclear from the comment whether the meaning is that all USTs on Port property should be included in the groundwater study component of the Agreed Order because they are MTCA sites, or that all USTs should be included the pollution prevention component of the Agreed Order. There are some USTs outside the AOMA where no contamination has been reported and/ or do not present risk to the Qva aquifer, and these locations will not be included in the contaminant transport part of the groundwater study. The Agreed Order clearly states that all UST systems at STIA will be assessed regarding pollution prevention activities. The Agreed Order will not be rewritten regarding the request.

The Public Participation Plan states that the USTs at the airport will be looked at for compliance with Washington’s Underground Storage Tank Regulations. This statement is clear and will not be rewritten.

Comment #8:

The Agreed Order mentioned that four sites are known to have contaminated the upper layer of the aquifer, but Mr. Nye wrote a memo dated August 30, 1995 that stated “the shallow regional aquifer has been impacted by hydrocarbon contamination in SIX locations”.

Response #8:

Levels of contamination in the subsurface environment do not forever remain constant and change over time due to natural processes. Furthermore, the acquisition of subsurface environmental information at Sea-Tac Airport is an ongoing process. Based on environmental information current at the time of the draft Agreed Order in May 1997 there were four MTCA sites where contaminant levels in the Qva aquifer exceeded cleanup standards. Based on environmental information current at the time of the final, signed Agreed Order in May 1999, there were eight MTCA sites where contaminant levels in the Qva aquifer exceeded cleanup criteria, and these eight sites are mentioned in the final Agreed Order.

Comment #9:

The following sites should be included in the groundwater study along with the 12 sites mentioned in the Agreed Order: **1.** Fire Dept. (3 USTs), **2.** paint shop, **3.** auto shop (2 USTs), **4.** maintenance bldg. yard, **5.** supply/loading dock area (2 USTs), **6.** boiler room and cooling towers (2 USTs), **7.** conveyor shops, **8.** engineering yard/building, **9.** contractor staging areas, **10.** hazardous materials storage area, **11.** Weyerhaeuser USTs, **12.** Postal Service USTs, **13.** lagoon sludge area.

Response #9:

The final Agreed Order states that there are 13 separate locations (MTCA sites) within the AOMA that are known to have contaminants present in perched groundwater and/or significant soil contamination (one additional site was added because of new information since the draft Agreed Order). This comment lists 13 additional locations and designates these locations “sites” as well. However, none of the 13 locations listed in the comment that are called “sites” are known to have contaminants present in perched groundwater and/or significant soil contamination.

The fact that hazardous substances are stored or handled in some way at a particular location doesn’t automatically qualify that location as a site subject to MTCA cleanup requirements where without data; the assumption is made that the groundwater and/or soil are contaminated. The locations listed in the comment are not comparable to the known MTCA sites identified in the Agreed Order, are not relevant to the objectives of the groundwater study, and will not be added to the list of known MTCA sites. Locations where USTs are operating listed in the comment will be included in the pollution prevention part of the Agreed Order.

Comment #10:

Ecology should request that the Port release funds to clean up the six known sites above the aquifer which are contaminating its waters because the upper and middle layers of the aquifer are connected.

Response #10:

Environmental investigations and/or cleanup actions have been or are currently being conducted at the eight known sites where contaminant levels in the Qva aquifer are known to exceed cleanup standards. These activities are being conducted not only by the Port, but also by tenant companies such as airline and rental car companies that are responsible for the contamination. The various PLPs fund their own cleanup actions at their respective sites and will continue to do so.

All aquifers are connected to some degree. Whether or not aquifers are connected well or not may have bearing on the risk possibly posed by the contamination, and the groundwater study will consider this issue.

Comment #11:

The Agreed Order should be revised to indicate that besides a flow to the west, there is a flow beneath. It is known that the “flow” has reached Des Moines Creek because all the reaches of the creek are contaminated with oil and grease.

Response #11:

The Qva aquifer is known to flow mostly to the west at the individual MTCA sites and this aquifer is the primary carrier of contamination via groundwater flow. The groundwater study will evaluate the possibility that contamination in the Qva aquifer poses risk to public drinking water wells. Since the public drinking water wells pump from aquifers beneath the Qva, it is obvious that the flow in the deeper aquifers must be

considered. The groundwater flow model will be three-dimensional and simulate flow in the deeper aquifers as well as the Qva aquifer.

It is known that Des Moines Creek has been contaminated with petroleum substances by accidental release of fuels directly into the creek or into storm drains that lead to the creek. Storm water containing petroleum constituents has also been a factor. It is not known whether groundwater seeping into Des Moines creek is or has been a contributing factor to contamination in the creek. The groundwater study will evaluate this issue.

Comment #12:

The Agreed Order mentions the impracticality of drilling because of taxiing aircraft. Ecology should realize that one runway can be closed at night and that the Port repaves and works on runways continually with minimal hazard to people or planes.

Response #12:

Drilling activities done in localized areas (such as to investigate contamination associated with specific facilities within the AOMA) in the near proximity to active aircraft operations require a considerable amount of time and effort to attend to extra requirements that often impede the normal course of the drilling. For example, just the time coordination that is required with aircraft operations places strict limitations on when drilling can occur at any particular location, and on operating hours in general. Drilling at the airport is also complicated by the fact that two drill rigs are required: one rig to core through the concrete, and another rig to complete the actual boring.

The problems, requirements, and limitations of conducting drilling and construction activities in localized areas in the near proximity of active air operations are significant, but these activities can and are carried out. The problems would be greatly magnified however if these activities were carried out on a much larger scale in the proximity to active air operations such as throughout the entire AOMA.

Comment #13:

Ecology should look at the whole facility – where the oil is and where it is going and how to clean it up. It is unclear what the water flow model with limited input from only the AOMA will prove.

Response #13:

It is readily apparent from any cursory look at the whole airport that all major oil storage and transfer facilities are located in the AOMA (bulk storage plant, transfer pipelines, hydrant pipelines, UST farms, etc.). The oil is in the AOMA. The groundwater flow model will encompass a large area that includes the entire airport and vicinity and the contaminant transport modeling will determine where the oil and other contaminants originating in the AOMA go via groundwater flow.

Comment #14a:

Ecology should assure the airport communities that the contaminated soil and water already identified at Sea-Tac Airport be cleaned up regardless of the final outcome of the Agreed Order.

Response #14a:

The Model Toxics Control Act (MTCA) mandates cleanup requirements of contaminated soil and groundwater at Sea-Tac Airport and all other contaminated sites throughout the state of Washington. The results of the Agreed Order will not negate general cleanup requirements under the MTCA at the airport. It must be realized the “cleaned up” under MTCA requirements means that contaminant levels no longer pose unacceptable risk to human health and the environment, and that generally groundwater is protected as a potential drinking water source. It does not mean that the soil and groundwater are necessarily returned to pristine conditions.

The legislature determines the resources that Ecology has available to work on contaminated sites. The requirements of MTCA apply to all contaminated sites, but Ecology does not have the resources to be involved in all contaminated sites. It is the agency’s policy to prioritize and utilize its available resources to work on the worst of the contaminated sites. Within this constraint, Ecology does, to the best of its ability, try to assure that the requirements of MTCA are met at all contaminated sites in the state including those at Sea-Tac Airport.

Comment #14b:

Ecology should recommend new fuel lines and a new leak detection system be installed at Sea-Tac Airport. The airlines did a one-time test on their piping not long ago, but this is inadequate over the long range.

Response #14b:

Leaks from fuel storage and transfer systems have caused the most abundant contamination at Sea-Tac Airport. At this time, four of the five airport hydrant systems at the airport have been closed down. A new underground fuel distribution system at Sea-Tac Airport is in the planning stages and this new system will incorporate modern leak detection methodology. The remaining operational hydrant system will be closed down pending completion of the new fuel distribution system but will be included in the pollution prevention part of the Agreed Order.

It was technically difficult and expensive to apply modern leak detection technology to piping systems built 30 years ago. Even so, the one-time testing airlines did on the piping of their systems would have been inadequate over the long term, and another round of testing would have been appropriate if the hydrant systems hadn’t been slated for closure.

Comment #15:

Questions are asked if the Department of Transportation regulates pipelines and if the DOT should be a part of this study.

Response #15:

The Department of Transportation regulates major pipelines, but not the smaller “intra facility” pipelines within Sea-Tac Airport. There is no reason the DOT should be a part of this study.

Comment #16a:

Mr. Nye stated at the public meeting that jet fuel is thick, moves at a slow pace, and he isn’t as worried about it as gasoline. Why then does the State demand the individual home owner (under MTCA) clean up his oil tank, the soil, etc. Should not Sea-Tac Airport have to comply with the same regulation?

Response #16a:

Mr. Nye is misquoted and did not state that jet fuel is “thick and moves at a slow pace”. Mr. Nye did state that jet fuel is not as mobile in the subsurface environment as other contaminants such as gasoline and solvents and therefore, does not present as great an environmental risk as other more mobile contaminants. The heavier oils and middle-distillate fuels such as jet fuel, diesel fuel, heating fuel, etc. generally present less environmental risk because of the reduced mobility of these products. The fact that a particular contaminant poses lower risk to the environment however does not eliminate the requirements for addressing it under the MTCA. The level of risk posed by a contaminant is an element that can be considered when making decisions regarding specific remedial actions.

The requirements of the Model Toxics Control Act, which came about as a result of a citizen initiative, apply equally to all those responsible for contaminating the environment, from huge corporations and government entities to small business owners and private citizens. Ecology does not have the resources to directly implement the requirements of MTCA at all contaminated sites however and especially at leaking home heating oil tank sites, which are very numerous and mostly do not pose significant environmental risk. Although the requirements of MTCA apply at these residential sites, real estate considerations rather than the State directly “demanding” cleanup mostly drive cleanup of these sites. Such contamination at residences devalues the property, makes financing difficult, can cause odors, and can impinge on a neighbor’s property.

Comment #16b:

It is disconcerting to hear that risk analysis is allowed at MTCA sites. An environmentally friendly consultant would recommend remediation while a business oriented consultant would recommend no action.

Response #16b:

Risk analyses is an inherent part of the MTCA process. The circumstances of contamination at every MTCA site are different and it is important to evaluate the specific risk posed by the contamination in order to implement appropriate remedial actions in an appropriate time frame. Risk analysis is a scientific process and it is usually straightforward to determine the risk posed by the contamination at a particular site. The data and specific circumstances at each particular contaminated site determine the

conclusions regarding risk. Furthermore, “low risk” does not automatically translate into “no action” under the MTCA.

Comment #16c:

The community would ask Ecology to put less emphasis on figuring out the “flow” and more emphasis on the importance of cleaning up the KNOWN sites which continue to contaminate the soil and water with hazardous substances.

Response #16c:

Part 1 of the Responsiveness Summary provides response to this comment.

There is no known continuing contamination taking place at the known MTCA sites. The sources of contamination have mostly been eliminated, and the soil and groundwater are not being contaminated further. Existing past contamination in the soil however, may be causing contaminant levels in groundwater to remain elevated at some of the known sites.

The Agreed Order clearly states that cleanup actions have been or are currently being conducted independently by STIA tenants and/or the Port in the known contaminated sites and also that unknown areas of contamination could exist. Contamination is transported by groundwater flow. Unless the groundwater flow is understood on a scale that encompasses the public and private water wells and surface water bodies, it is not possible to determine whether the current contamination could pose risk in the future or where contamination from potential unknown sources could be transported. The groundwater flow model will enable the groundwater flow and the contaminant transport via groundwater flow to be better understood. Evaluating risk is a more appropriate task for Ecology at this time than formally taking over the cleanup actions that are ongoing at the known MTCA sites. The Agreed Order will remain focused on the “flow”.

Comment #17:

The following information regarding Sea-Tac Airport should be added to the description of Sea-Tac Airport as provided in the Public Participation Plan: **1.** the number of passenger cars traveling to and from the airport annually, **2.** the number of trucks carrying air cargo goods traveling to and from the airport annually, **3.** the number of service trucks traveling annually, **4.** the number of gallons of jet fuel pumped, **5.** the daily amount of sanitary waste from airport dumped in Des Moines Sewer Plant, and **6.** the daily amount of industrial waste handled each day.

Response #17:

The description of Sea-Tac Airport is provided in the “Community Background” part of the Public Participation Plan (PPP). As per typical PPP format it is meant to provide a brief general description of the setting and scope of the facility’s purpose and operations, but not a detailed description of all activities that could have possible environmental significance at the facility. Environmental issues of concern to the public are described in the “Community Concerns” part of the PPP, and environmental issues relevant to the groundwater study are described in the Agreed Order. The information requested would be different annually and daily, and the comment does not specify a time frame the

information should cover. It is unclear why the considerable effort that would be required to research and compile the information is warranted and the information will not be provided.

Comment #18:

Information regarding cleanup actions at the Pan Am Fuel Farm Site is requested. In 1991 contamination had reached 23 feet and it continues to migrate towards the aquifer. Requests by the commentor for the quarterly monitoring reports for this site have not been answered.

Response #18:

The Pan Am hydrant system closed down in the late 1980s. During October 1990 Pan Am Airlines Co. partially demolished the large, built-in-place underground storage tanks (USTs) and removed some contaminated soil. At that time, the Pan Am Co. went bankrupt and the Port of Seattle took over remedial actions at the site, and completed environmental investigations during 1991- 1993. The extent of contaminated soil was delineated and four monitoring wells were installed in the Qva aquifer. The investigations indicated that contaminated soil did not extend to the Qva aquifer, and that most contaminated soil was adjacent to an active roadway and five high-pressure fuel pipelines. Given the risk that soil remediation could cause greater environmental harm, the soil was never remediated, but the groundwater (the Qva aquifer) was monitored for five years. During that time, no contamination in the Qva aquifer was detected. The site remains listed as having a “limited cleanup” with the expectation that at such time the contaminated soil becomes accessible and if contaminant levels are still above current cleanup standards, further remedial action will take place.

The comment implies a belief that once contamination enters the soil, then it moves downward in perpetuity until groundwater is contaminated. The behavior of contaminants in soil can be complex, and contaminated soil does not necessarily result in contaminated groundwater. Whether or not contamination reaches groundwater through the soil depends on many factors such as: the amount and duration of contamination released to the soil, the chemical nature of the contaminant, the chemical and physical properties of the soil, distance to groundwater, microbiological activity, the amount of rain that infiltrates through the soil, etc. There can be instances where soil contamination is extensive, but groundwater beneath the contaminated soil will never be contaminated, and there are some instances at the airport like that.

Ecology has an established process to follow for private citizens to gain access to the agency’s information. That process is to contact the Central Records section and either request an appointment for particular files to be made available for viewing, or request that particular files be copied for a fee and mailed out. The commentor has never chosen to follow the established process. Ecology does not have the resources to do research, compile, copy, and mail out voluminous amounts of environmental information all free of charge to anyone that makes such a request. All documentation regarding the Pan Am Fuel Farm Site is available to the public at Ecology’s Northwest Regional Office via the established process.



League of Women Voters of King County South • PO Box 66037, Seattle, WA 98166 • (206) 243-7161

RECEIVED

JUN 16 1997

DEPT. OF ECOLOGY

June 10, 1997

Serving the
cities of
Algona,
Auburn,
Black Diamond,
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Covington,
Des Moines,
Enumclaw,
Federal Way,
Kent,
Maple Valley,
Milton,
Normandy Park,
Pacific,
Renton,
SeaTac, and
Tukwila;
and the
unincorporated
areas of
South
King County.

Mr. Roger Nye
Department of Ecology
3190 160th Avenue Southeast
Bellevue, Wa 98008-5452

Ref: Agreed Order to Study Airport Ground Water

Dear Mr. Nye:

The League of Women Voters has long held a position that natural resources should be managed as interrelated parts of life-supporting ecosystems. Resources should be conserved and protected to assure their future availability. Pollution of these resources should be controlled in order to preserve the physical, chemical and biological integrity of ecosystems and to protect public health. In this regard, we support water resource programs and policies that reflect the interrelationships of water quality, water quantity, groundwater and surface water and that address the potential depletion or pollution of water supplies.

Through the years, members of our local League have been monitoring the news of the contamination by chemicals of the groundwater that is beneath the Seattle-Tacoma International Airport Operations and Maintenance area. Because of our grave concern about the effects this pollution will have to our community, we are encouraged that the Department of Ecology and Port of Seattle have signed an agreement for a ground water study at the airport.

[It is our understanding that the agreed order contains the scope of work for a comprehensive study of the environmental condition of the groundwater. The League supports the Mayor of Burien's request for a greater citizen's role in the study.

We wish you success in this endeavor and request you keep us informed as to the study's progress and results.]

Sincerely,

Becky Cox, President
League of Women Voters of King County South
PO Box 66037
Burien, WA 98166-0037

Response to comments by Becky Cox, President League of Women Voters of King County South on behalf of the League

Comments were presented in a letter dated June 10, 1997.

Comment #1:

The League of Women voters supports the Mayor of Burien's request for a greater citizen's role in the STIA groundwater study.

Response #1:

The Mayor of Burien requested an extreme citizen's role in the STIA groundwater study, which appeared to be one of complete citizen oversight of the project. Ecology cannot give up its authority to an outside group and the mayor's request cannot be accommodated.

The requirements for citizen participation in cleanup actions under Ecology's oversight are streamlined in comparison to citizen participation under other Ecology regulations and processes. Citizens may submit comments on proposed cleanup actions during formal comment periods and Ecology responds in writing to those comments. It is Ecology's decision whether or not individual comments are incorporated into the cleanup actions, and there is no process for citizens to appeal Ecology's decisions. The reason for this "streamlining" is that cleanup actions must often be carried out in a timely manner, and Ecology's ability to do this must be preserved.

Given sufficient time and resources, Ecology can at times provide for citizen participation activities beyond the basic requirements, but rarely can accommodate an iterative process with citizens "at the table" at all times. In regards to the groundwater study project, Ecology has provided additional activities in terms of informational meetings early in the project, a fact sheet providing interim progress information and a standing invitation for anyone to call Ecology for information.

Given the voluminous comments received on Phase I of the STIA groundwater study, and the opportunity for further citizen comment on the results of Phase I and proposed actions during Phase II of the study, there appears to be ample opportunity for citizen input to this project.

June 12, 1997

Roger Nye
Department of Ecology
Bellevue, WA 98008-5452

- 1 [I want to voice my objections to the amount of fill dirt slated to go into the Miller Creek Ravine north and west of the Seattle-Tacoma Airport.

A change in the terrain of this magnitude and the added impervious surfaces can certainly cause changes to the ground water patterns of this drainage basin. Ground water is important and the QVA aquifer must be protected.

When we were involved in a lawsuit with King County, Port of Seattle and Washington State Highway Department in the 1970's we attended lectures at the University of Washington in "Forest Hydrology". One thing we learned was that filling of wetlands in some cases have dried up lakes several miles away. It is a fact that radical changes in the terrain can cause changes in the ground water flow. [It seems to me you said there was a clay layer at Sea-Tac Airport that the oils are floating on and that the oils would slowly migrate to the west. What if there is a sand pocket in that clay layer? Where does the oil go on its migration?] 2

The "Agreed Order" with the Port of Seattle is not acceptable. The Port of Seattle cannot be trusted to do an honest evaluation of the ground water study. The Port of Seattle is a master of manipulation and altering the facts to "hood-wink" the citizens into thinking they are taking care of the problem.

- 3 [The Department of Ecology needs to enforce the Washington State Ground Water Law WAC 173-200 and apply it to the Port of Seattle. The Port has been lax about contamination problems for an extended period of time.] 3

The Washington State Department of Ecology is a government agency that is charged with administering the environmental laws of our State. I am interested in protecting our environment. I was glad when the DOE was established as a government department with rules that would help preserve our "Wonderful World of Woods and Water".

- 4 [I am concerned that the Port of Seattle has pressured the DOE for special treatment - to bend the laws to suit the Ports' purposes.] The Port of Seattle is a government agency. I feel that all government agencies should be exemplary in following the laws of our State.

- 5 [I am enclosing a copy of my "Declaration" regarding the Miller Creek Settlement made in 1972 and 1974 with the Port of Seattle, King County and Washington State Highway Department. This is a continuing agreement with no sunset.] 5

Sincerely,

Helen D. Kludt

Helen D. Kludt
17529 13th Ave SW
Seattle, WA 98166

FILED
KING COUNTY, WASHINGTON

JUN 24 1996

SUPERIOR COURT CLERK

IN THE SUPERIOR COURT OF THE STATE OF WASHINGTON FOR KING COUNTY

WILLIS W. KLUDT et ux. et al)	
Plaintiffs,)	No. 726259
vs.)	
COUNTY OF KING,)	
the PORT OF SEATTLE, and)	DECLARATION OF
the WASHINGTON STATE)	
HIGHWAY COMMISSION)	HELEN D. KLUDT
Defendants,)	

Helen D. Kludt testifies as follows:

1. I reside at 17529 13th Avenue Southwest in Normandy Park, Washington. I am of legal age and sound mind. I am one of the parties plaintiff in an action titled Kludt et ex., et al. vs. County of King, the Port of Seattle and the Washington State Highway Commission, Cause No. 726259. I am the designated representative of all the plaintiffs.

2. In partial settlement of the above described lawsuit I executed an instrument on behalf of said plaintiffs titled Stipulation and Order of Dismissal as to Defendant Port of Seattle with the Port of Seattle on October 12, 1972. This stipulated settlement agreement was filed in King County Superior Court under Case No. 726259. A copy of this agreement is attached hereto, as Exhibit 1.

Declaration of Helen D. Kludt - Page 1

1
2
3 3. Attached to the aforesaid Stipulation and Order of Dismissal as to Defendant Port of
4 Seattle (Exhibit 1 hereto) as Exhibit A, is a letter dated October 6, 1972 from Port of Seattle
5 Chief Engineer Vern Ljungren. This letter describes the North Clear Zone Detention Pond
6 which was constructed under the terms of the stipulated settlement agreement with the Port of
7 Seattle:

8 The Port of Seattle Engineering Department will recommend
9 to the Port Commission that the North Clear Zone
10 Detention Pond be constructed during the summer of 1973.
11 This recommendation will be made as soon as a preliminary
12 cost estimate covering this work is completed. We
13 anticipate that this will be no later than the November
14 14, 1972 meeting of the Port Commission. This detention
15 pond will have minimum storage capacity of 13.5 acre feet
16 of water (with 1.75 feet of freeboard). This storage
17 capacity will be over and above the normal holding
18 capacity of the pond. The detention pond will have a
19 maximum discharge of 40 cubic feet per second. . . . 1

20
21 3. The Stipulation and Order of Dismissal as to Defendant Port of Seattle (Exhibit 1) dated
22 October 12, 1972 records the terms of the settlement agreement whereby:

23 Plaintiffs and the Port of Seattle, through their
24 undersigned attorneys, hereby stipulate and agree as
25 follows:

26 1. The Port of Seattle shall deliver to attorney for
27 plaintiffs a letter in the form attached herein as
28 Exhibit A.

2. Plaintiff's Amended Complaint shall be dismissed
as to defendant Port of Seattle without prejudice.

1 Stipulation and Order of Dismissal as to Defendant Port of Seattle, Kludt et ux., et al. v. King
County and State of Washington Highway Commission, No. 762259 King County Superior Court
Oct. 12, 1972, Exhibit A.

1
2 3. In the event that the Port of Seattle decides not
3 to construct the drainage retention facility described in
4 Exhibit A, or in the event that such facility, as
5 constructed, does not have the storage capacity and
6 maximum discharge characteristics outlined in Exhibit A,
7 plaintiffs may commence an action against the Port of
8 Seattle and the Port of Seattle stipulates that said
9 action may be placed upon the trial calendar at the
10 earliest available date, but not earlier than 60 days
11 from the date of commencement of such action. No
12 provision of this stipulation of Exhibit A shall be
13 interpreted to create any cause of action or claim not
14 now existing or available to the plaintiffs.

15 4. Plaintiffs hereby release the Port of Seattle
16 from all claims for damages or injunctive relief now
17 existing or arising before October 1, 1974 arising from
18 any alteration of the water purity, water volume, water
19 flow velocity or other flow characteristics of Miller
20 Creek resulting from the construction or maintenance of
21 the drainage retention facility as described in Exhibit
22 A, or from the construction of additional facilities at
23 Seattle-Tacoma International Airport which drain into
24 Miller Creek through said facility PROVIDED HOWEVER that
25 the effectiveness of this release is expressly
26 conditioned upon completion by the Port of Seattle of the
27 drainage retention facility as described in Exhibit A,
28 and provided further that the effectiveness of this
release is expressly conditioned upon maintenance in
their present condition by the Port of Seattle, of the
existing dike and to each culvert at 16th Avenue in the
North Clear Zone of the Seattle Tacoma International
Airport between the date of this Stipulation and the
initiation of the drainage facility described in Exhibit
A attached hereto.

20 DATED this 11th day of October, 1972. . . . 2

27 ² Supra, p.1-2.

1 4. On February 16, 1973 Defendant King County presented a motion in King County
2 Superior Court to set aside the trial date of February 26, 1973 for this case. The motion
3 requested a delay of the trial date to allow completion of the study known as the "Sea-Tac
4 Airport and Vicinity Master Plan". The Court granted this motion and issued an Order
5 requiring "that periodic progress reports concerning the status and work product of the Sea-
6 Tac Airport and Vicinity Master Plan shall be furnished by King County to the plaintiffs'
7 attorney, and that said reports shall be furnished at not less than six week intervals during the
8 period the study is in progress."
9

10 5. The Sea-Tac Airport and Vicinity Master Plan, subsequently named the Sea-Tac
11 Communities Plan, involved an effort by the Federal Aviation Administration, the Port of
12 Seattle, King County, and local citizens. The principal goal of the plan was to attain maximum
13 compatibility between Sea-Tac airport and surrounding communities. George Buely and
14 George Saito of the FAA obtained a grant of approximately \$600,000 which paid two-thirds
15 of the cost of the Sea-Tac Communities Plan. The Port of Seattle and King County
16 contributed about \$100,000 each in services to the plan. To accomplish its goals, the Sea-Tac
17 Communities Plan recommended the implementation of drainage and water quality
18 improvements, park and recreation improvements, the establishment of comprehensive noise
19 remedy programs, and an agreement by the Port and King County to fulfill the staff and
20 budgetary needs of implementing the plan. I was asked to be a member of the Citizens
21 Committee that was created to participate in the Sea-Tac Communities Plan and assisted as a
22 citizen member on the plan's Water Quality and Drainage Study Committee.
23

24 6. In November 1973 the Sea-Tac Communities Plan: Six-Month Summary Report was
25 completed. A copy is attached hereto as Exhibit 2. The major findings of the Sea-Tac
26 Communities Plan were identified in the plan's Phase I conclusions:
27
28

2 The Airport site has adequate capability to accommodate
3 foreseeable air traffic demand. No major expansion of the
4 site is required.

5 Noise exposure has peaked and, although expected to
6 decrease with time, will remain a significant
7 environmental problem in certain areas.

8 Overall size of the study area population, some 137,000
9 in 1970, has generally stabilized; only minor increases
10 are expected during the next 20 years.

11 Employment in the area, especially at the Airport or as
12 related to Airport activities, is increasing.

13 No insurmountable problems relative to air and water
14 quality have been identified to date. ³

15 7. I attended many meetings and discussions with Port of Seattle and King County
16 representatives in conjunction with the Sea-Tac Communities Plan concerning water quality
17 and drainage problems existing in the Miller Creek Basin. One of the issues which arose in the
18 course of these committee discussions was a proposal which contemplated the
19 rechannelization of Miller Creek in order to extend highway 509. In a November 30, 1973
20 memorandum to the Chairman of the Sea-Tac Community Plan's Policy Advisory Committee,
21 Urban Development Sub-Committee member Bruce Mecklenburg stated "the Water Quality &
22 Drainage Task Force, is compelled to document its feeling on this." He noted the Plan's
23 Phase I technical consultant had concluded that the Miller/Walker Creek drainage system "...
24 is presently inadequate to handle the runoff." Mr. Mecklenburg wrote "[t]he wetland East of
25 Des Moines Way between South 168th and South 176th is a critical element in the streams'
26 drainage system ..." and commented on the Washington State Department of Highway's
27 announced intention "to shortly begin construction on a highway 509 extension from South
28 160th the south 168th ..."

³ The Sea-Tac Communities Plan: Six-Month Summary Report, November 1973, Summary

1 8. Mr. Mecklenburg noted "In as much as both Miller Creek and Walker Creek are already
2 over burdened with storm drainage, the addition of 10 acres of nearly impervious paving and
3 29 acres of nearly impervious grassy slopes cannot be tolerated without some positive
4 assurances that this increased storm runoff will be completely controlled. Finally, his
5 memorandum stated "the contemplated rechannelization of Miller Creek into some 400 feet of
6 culverting is totally unacceptable essentially precluding any subsequent resortation [sic] of the
7 creek into a natural streambed as part of our overall program to achieve a continuous
8 pedestrian recreational footpath along the creek." A copy of this memorandum is attached
9 hereto as Exhibit 3.
10

11 9. Numerous meetings of the Water Quality and Drainage Study Committee took place
12 during 1973 and 1974. During these meetings and discussions related to the Sea-Tac
13 Communities Plan representatives of the Port of Seattle stated that one of the purposes of
14 Sea-Tac Communities Plan was to adopt land use planning for the communities affected by
15 Sea-Tac Airport which would enhance the residential areas around Sea-Tac airport and
16 prevent them from deteriorating. At these meetings Port officials emphatically stated to
17 citizens who participated on the committees that the second runway was the last expansion
18 project at Sea-Tac airport. I particularly remember that Port of Seattle Commissioner Paul
19 Friedlander stated "This is enough. We cannot ask these communities to take any more." The
20 assumptions set forth in the Sea-Tac Communities Plan provided the basis for the stipulated
21 settlement agreements which were reached with the Port of Seattle and King County on behalf
22 of the residents in the Miller Creek basin.
23
24
25
26
27
28

2 10. A stipulated settlement agreement of the lawsuit with defendants King County and the
3 Washington State Highway Commission was reached in October 1974. The agreement titled
4 Stipulation and Agreement for Settlement, was filed in King County Superior Court under
5 Case No. 726259. A copy of this agreement is attached hereto, as Exhibit 4. Provisions of
6 this stipulated settlement agreement prohibit changes made to Miller Creek and the Miller
7 Creek Basin. Certain provisions prohibit increasing the quantity of water flow in Miller
8 Creek. Other provisions require improving water quality in Miller Creek and prohibit any
9 future channelization of Miller Creek:
10

11 WHEREAS, the parties have reached agreement on the
12 general direction and nature of future King County
13 hydraulic planning and construction activity in the
14 Miller Creek Drainage Basin;

15 WHEREAS, it is understood by all signatories that
16 breach of this settlement agreement may result in a
17 refiling of the lawsuit;
18

19 THEREFORE, in consideration of the promises exchanged
20 herein, the parties agree as follows;

21 1. King County and the Washington State Highway
22 Commission recognize that serious flooding and drainage
23 problems have existed in Miller Creek drainage basin for
24 a number of years, that such problems will increase in
25 the future as development increases, and King County
26 agrees that corrective programs and drainage facilities
27 are required and should be implemented as promptly as
28 possible.

2. King County Department of Public Works, Division
of Hydraulics, pledges the use of \$65,000 in remaining
revenue sharing funds for further planning and design
study in the Miller Creek basin. Said funds will be
expended upon completion of the RIBCO Urban Run-off and
Basin Drainage Study and the Sea-Tac Communities plan.
The Division of Hydraulics anticipates that such further
planning and design studies will take place during 1975.

Declaration of Helen D. Kludt - Page 7

1 3. King County agrees that it has abandoned the
2 total channelization of Miller Creek and agrees that it
3 will not in the future attempt the channelization of
4 Miller creek except in limited amounts in connection with
5 retention facilities.

6 4. Plaintiffs acknowledge and recognize there are
7 numerous possible methods of maintaining the character
8 and quality of Miller Creek and further recognize that
9 there are other residents and property owners in the
10 Miller Creek basin whose views as to project design and
11 implementation will also be considered equally by King
12 County. Plaintiffs also recognize that the King County
13 council will have final approval as to the design,
14 location, scope and nature of any project in Miller Creek
15 Drainage basin. The division of Hydraulics will,
16 however, recommend to the King County Council and will
17 use its best efforts to achieve the programs, concepts
18 and agreements contained herein.

19 5. King County acknowledges the long term and
20 sincere concern of numerous citizens in the Miller Creek
21 Basin in maintaining the quality and integrity of the
22 creek and guarantees continued solicitation of citizen
23 input in the final selection of a design solution.

24 6. King County Surface Water Utility Board, created
25 by Council Motion 1478, will present to the Council
26 during October 1974 its report calling for the creation
27 of a county-wide surface water utility pursuant to the
28 terms of the County Services Act, RCW 36.94, and
requesting initial funding of \$1 million. The creation of
such an utility requires comprehensive sub-basin planning
of detailed surface water management solutions and would
permit the levying and collecting of service charges
within each sub-basin in which a solution is planned and
initiated.

7. Upon completion of the planning and design
studies for the Miller Creek basin as provided herein,
the surface water utility will prepare a sewerage general
plan for the Miller Creek basin. The surface water
utility will use its best efforts to obtain approval of
said plan by the King County Council, the requisite
review committee and any other governmental agencies
having authority or jurisdiction over the plan area.

1 8. Upon completion of the Miller Creek sewerage
2 general plan, the surface water utility will proceed as
3 soon as practicable with implementing the necessary
4 financing so that work pursuant to the plan may be
5 initiated. Without limitation of any appropriate method
6 of financing, King County will impose the necessary
7 charges on all property owners within the Miller Creek
8 Basin and will consider the levying of rates and charges
9 based on impervious surface areas.

10 9. The Washington State Highway Department will
11 recommend to the Washington State Highway Commission that
12 the Washington State Highway Department pay any
13 assessment levied by King County based upon the
14 assessments levied upon other property owners in the
15 Miller Creek basin in accordance with the impervious
16 surface area of state highways (SR 509 and SR 518) owned
17 by the Washington State Highway Department in the Miller
18 Creek drainage basin as such drainage projects
19 implemented by King County benefit those highway systems.

20 10. Upon approval of the sewerage general plan and
21 obtaining the necessary financing, King County will
22 proceed with the construction of appropriate facilities,
23 as set forth in said plan which will:

24 a. improve the water quality of Miller Creek;

25 b. prevent surface water from being collected and
26 discharged into Miller Creek in excess of its
27 natural capacity;

28 c. maintain or improve the present character and
appearance of Miller Creek.

.

16. King County will attempt to design and construct
future public works, subject to technical considerations,
and regulate private projects in the Miller Creek
Drainage basin so that such projects will not adversely
affect the present character of Miller Creek or increase
the quantity of water which flows into Miller Creek.

17. In the event this agreement is not implemented,
plaintiffs may refile said action, and defendants agree
not to raise any defenses based on the
statute of limitations.

.

1 19. A schedule of planned implementation of this
2 agreement shall be provided to plaintiffs within five
3 days of the date of the agreement by King County and King
4 County shall use its best efforts to follow said schedule
and shall advise the plaintiffs concerning any possible
changes in said schedule and reasons therefore. ⁴

5

6
7 10. In November 1974 the King County Council adopted a motion "relating to
8 comprehensive surface water planning and management, water shed protection, and providing
9 for the development of a Surface Water Utility in King County." A copy of this motion is
10 attached hereto as Exhibit 5.

11
12 11. The above described stipulated settlement agreements remain in full force and effect,
13 and plaintiffs have not waived, nor has the court excused defendants from observing the said
14 agreements, which include the following provisions:

15 a. prohibiting future channelization of Miller Creek; and

16 b. requiring that future projects located in the Miller Creek Basin watershed be designed
17 to maintain and improve the water quality of Miller Creek; and

18 c. requiring that the King County Sewerage General Plan prevent flow rates in Miller
19 Creek that exceed the creek's natural capacity; and

20 d. requiring that the King County Sewerage General Plan maintain or improve the
21 present character and appearance of Miller Creek.

22 e. requiring that to the extent that the addition of new impervious surface areas and fill
23 areas discharge water into Miller Creek in excess of its natural capacity, such new surface
24 areas constitute a violation of the settlement agreements; and
25

26
27 ⁴ Stipulation and Agreement for Settlement as to Defendant King County and Washington State
28 Highway Commission, Kludt et ux., et al. v. King County and State of Washington Highway
Commission, King County Superior Court, Case No. 726259 dated October 1974.

1 f. requiring that the stormwater pollution prevention plan and erosion and sedimentation
2 control plan in the Miller Creek Basin provide for the continued maintenance of the existing
3 North Clear Zone Detention Pond described in Exhibit A of the Stipulation and Order of
4 Dismissal as to Defendant Port of Seattle; and

5 g. requiring that the existing North Clear Zone Detention Pond facility described in
6 Exhibit A of the Stipulation and Order of Dismissal as to Defendant Port of Seattle maintain a
7 maximum discharge rate of 40 cubic feet per second; and

8 h. requiring that any action affecting the storage capacity and maximum discharge rate of
9 the existing North Clear Zone Detention Pond as described in Exhibit A of the Stipulation and
10 Order of Dismissal as to Defendant Port of Seattle constitutes a violation of the settlement
11 agreements; and

12 i. requiring that drainage from additional facilities constructed at Seattle-Tacoma
13 International Airport which causes the natural capacity of Miller Creek to be exceeded
14 constitutes a violation of the settlement agreements.

15
16 12. At the time of settlement all parties agreed that the violation of any of the provisions of
17 the above stipulated settlement agreements constitutes grounds for refiling of the lawsuit.

18
19 13. At the time of settlement all parties agreed that the provisions of the above stipulated
20 settlement agreements inure for the benefit of the successors and assigns of the above named
21 Plaintiffs and Defendants, including citizens, municipal corporations and public works facilities
22 located in the Miller Creek Basin.

23
24 14. Finally, that at the time of settlement was reached, all parties agreed that the provisions
25 of the Stipulation and Order of Dismissal as to Defendant Port of Seattle and the Stipulation
26 and Agreement for Settlement with King County, inure for the benefit of all parties concerned
27 with maintaining the provisions of the above stipulated settlements agreements.

28
Declaration of Helen D. Kludt - Page 11

1
2
3 I declare under penalty of perjury that I believe the foregoing statements to be true and
4 have personal knowledge of the facts stated herein.
5

6 Executed at Seattle, Washington this 30 day of December, 1995

7 Helen D. Kludt
8 Helen D. Kludt
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Declaration of Helen D. Kludt - Page 12

Table of Exhibits

Exhibit 1	<u>Stipulation and Order of Dismissal as to Defendant Port of Seattle, Kludt et ux., et al. v. King County and State of Washington Highway Commission, No. 762259 King County Superior Court, Oct. 12, 1972</u>
Exhibit 2	<u>Sea-Tac Communities Plan: Six-Month Summary Report November 1973</u>
Exhibit 3	<u>Memorandum to the Chairman of the Sea-Tac Community Plan's Policy Advisory Committee, Urban Development Sub-Committee member Bruce Mecklenburg, November 30, 1973</u>
Exhibit 4	<u>Stipulation and Agreement for Settlement, King County Superior Court, Case No. 726259, October 1974</u>
Exhibit 5	<u>A MOTION relating to comprehensive surface water planning and management, water shed protection, and providing for the development of a Surface Water Utility in King County. November 1974</u>

Response to comments by Helen D. Kludt

Comments were received in a letter dated June 12, 1997.

Comment #1:

Airport construction activities related to the Third Runway that cause radical changes in the terrain such as filling the Miller Creek Ravine, filling wetlands, and adding impervious surfaces are objectionable because they cause changes in groundwater flow patterns.

Response #1:

The construction activities described could produce effects on groundwater flow, and in particular on surface waters, but the determination of these effects and appropriate mitigation measures are more appropriately addressed through other processes such as the EISs and the 401 /404 Permit rather than this groundwater study. The Agreed Order is a MTCA remedial action to evaluate risk to receptors possibly posed by contaminants in groundwater at the airport. Construction activities per se would not introduce contaminants to groundwater and would only be significant to this groundwater study if groundwater flow patterns were changed enough to influence the transport pathways of the contaminants coming from the AOMA. This issue will be considered in the groundwater study only if it appears to be relevant to contaminant transport.

Comment #2:

During the public meeting it was stated that there is a clay layer at Sea-Tac Airport that the oils are floating on, but what if a sand pocket was in that clay layer? It was also stated that the oils slowly migrate to the west, but where does the oil go on its migration?

Response #2:

A simplified description of the hydrogeology and nature of known contamination at Sea-Tac Airport was presented in the public meeting. The comment describes a clay layer with oil floating on it, which is not entirely correct. There is a dense geologic unit throughout much of the airport called “glacial till” about 30 – 50 ft. thick, which lies above the regional water table (Qva, or “shallow aquifer”) beneath. The glacial till unit contains clay, silt, sands, and gravel but on the whole, it is not highly permeable which means rainwater and other liquids such as jet fuel cannot easily pass through it. The Qva aquifer occurs below the till unit within a geologic unit comprised mostly of sand, which liquids can flow through more easily.

The till unit has surely protected the Qva aquifer from many spills and leaks that have occurred at the airport over the years but, for various reasons, the till unit has not provided complete protection. As described in the Agreed Order the Qva aquifer contains jet fuel and other contaminants at some locations within the AOMA. The fuel contamination floats on the Qva aquifer. Known information from specific locations indicates the Qva aquifer flows to the west and transports contaminants in that direction, but no known contamination in groundwater extends outside the AOMA at this time. The flow directions of the Qva and deeper aquifers are not well known over large areas however, and it is the purpose of the groundwater study to determine these flow

directions and to determine where the “oil” and other contaminants could migrate in the groundwater in the future.

Comment #3:

The Department of Ecology needs to enforce the Washington State Ground Water law, WAC 173-200 at the airport because there has been laxity about contamination problems there for some time.

Response #3:

Response to this comment is provided in Part 1 of the Responsiveness Summary.

It should be realized that much of the soil and groundwater contamination at Sea-Tac Airport occurred historically prior to the effective date of many environmental regulations including WAC 173-200, and at a time when the level of environmental awareness everywhere was much lower than it is at present.

Comment #4:

It is of concern that the Port of Seattle has pressured the Department of Ecology to bend the laws to suit the Port’s purposes.

Response #4:

The comment does not explain why it is thought or how that Ecology is allegedly “bending” the laws so a specific response is not possible. The Port of Seattle is only one of a large population of organizations and companies that Ecology regulates. It is nonsensical to believe that, unlike the rest of the population of regulated entities, the Port of Seattle has some unique power to successfully “pressure” Ecology to “bend” laws. Conversely, perhaps the comment implies that Ecology “bends” laws routinely for all entities in the regulated population, which is equally nonsensical. The Agreed Order is an investigative remedial action to evaluate risk, which is a typical component of the MTCA process that can be applied at all contaminated sites.

Comment #5:

A copy of a “Declaration” outlining the details of a continuing agreement called the Miller Creek Settlement made in 1972 –74 between citizens of the Miller Creek basin and the Port of Seattle, King County, and Washington State Highway Department was provided ostensibly for Ecology’s consideration and comment.

Response #5:

The settlement apparently came about as a result of a lawsuit filed by citizens to protect Miller Creek from further degrading effects caused by various ongoing and proposed construction activities at and near the airport at the time. The details of the settlement were based on the findings of a “Sea-Tac Communities Plan”, which was a joint effort between local citizens, King County, and the Port of Seattle to attain maximum compatibility between Sea-Tac Airport and the surrounding communities. The information in the Declaration provides an interesting historical perspective relative to present ongoing issues between Sea-Tac Airport and citizens in the surrounding

communities, and may impose constraints and have legal implications to current construction activities at the airport.

Ecology had no role in the settlement however, and it is not clear what relevance the information in the declaration has to Ecology and, in particular, to this Agreed Order. Ecology's role at Sea-Tac Airport is to implement the requirements of current environmental laws and regulations as applicable to activities at Sea-Tac Airport that involve environmental impacts. During the processes of implementing these laws and regulations, there are opportunities for public participation. It is not Ecology's role at the airport however; to become embroiled or take sides in the ongoing struggle between local citizens and the Port of Seattle over such issues as construction of the Third Runway.

RECEIVED

JUN 16 1997

DEPT. OF ECOLOGY

June 12, 1997

Mr. Roger Kadeg
15248 29th Ave. So.
SeaTac, WA 98188-2008

Mr. Roger Nye
WA Department of Ecology
Northwest Regional Office
3190 160th Ave. S.E.
Bellevue, WA 98008-5452

**Subject: Formal Comments, Agreed Order, Port of Seattle / Ecology Environmental
Study of Ground Water at Seattle-Tacoma International Airport**

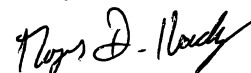
Dear Mr. Nye:

Attached please find my comments on the subject order, directed to your attention as per the Ecology Newsletter of May, 1997. As a 40 year resident in the airport impacted zone, I have a great deal of interest in the results of the numerous environmental evaluations associated with the Port's desire to develop a third runway at the airport. As a senior technical staff member of the Northwest's leading environmental consulting firm in remediation, I also have an interest that such investigations are conducted in a scientifically defensible manner, to a level appropriate to the scale and scope of the proposed developments.

I would encourage Ecology to feel comfortable in their public trust as implemented and mandated through such statutes as the Model Toxics Control Act, Chapter 90.48 RCW and associated WAC Chapters 173-200, 201, and designated authority under the Clean Water Act. The directed mission of Ecology is not necessarily that of accommodation to the Port in their management, operation, and development of facilities. However, the protection of human health and associated ecosystems is a cornerstone of Ecology's role under these statutes and associated regulations. The Port's historic or current operations as they relate to human health or the environment are rightly subject to complete and thorough investigation, and full remediation under the law. Ecology should not bend or yield to the intense political pressures, expedited schedules, or other factors that would deter it from its mission. As citizens, we through our representatives have empowered Ecology to direct the investigations and require the corrective and remedial actions necessary, independent of any private or public works project.

I thank Ecology for this opportunity to provide comment and participate in the process. Please keep me informed and include me on mailing lists for any future notifications and newsletters as they relate to the airport development.

Sincerely,



Roger Kadeg, M.S., M.S.E.

Comments On Ecology/Port Agreed Order for Ground Water Study at Seattle-Tacoma International Airport (SeaTac)

1.) ¹ [The order indicates that the modeling study is to be conducted in lieu of a remedial investigation (RI). The rationale is given that an RI is not feasible, drilling (well placement) is impossible and costs prohibitive. There are several problems with this reasoning.

a.) Ecology is inconsistent here in their reasoning, when considering other investigations. Numerous RI/FS studies (recent and current) with Ecology review and approval, under the auspices of Navy CLEAN and RAC programs and Air Force HAZWRAP and AFCEE programs (performed to MTCA criteria), have been conducted at large, active airports (e.g. Whidbey NAS, McChord AFB). These studies have incorporated soil borings, installation of monitoring wells, and ground water investigations for sites and spills of lessor magnitude, extent and duration than those at SeaTac. Ecology leaves itself wide open for litigation under consistency rulings.

b.) These very investigations indicate that at a minimum some type of modified RI can be designed, beyond the present vague modeling scope.

c.) Large earthmoving equipment and dump trucks have operated for years around the perimeter fence roads and during various expansion activities; at a minimum perimeter monitoring wells can easily be installed.

d.) It is extremely unusual for cost to enter as a major criteria for exclusion of an RI at a facility of this size, with a proposed 0.5-2 billion dollar development, under a PLP with the resources of the Port. Ecology may also be in potential litigation trouble on this point, as well. Ecology must hold the Port to the same level of effort it does for other large PLPs, such as the Navy, Air Force, and private sector Fortune 500 companies. Some additional RI work is clearly not precluded by cost (e.g. consider the previous activities already conducted by private sector companies at SeaTac).

e.) The evaluation and the supporting criteria for this conclusion are not documented or referenced. As indicated above, activities at other sites suggest that the statement is not supported. It is not at all clear how this conclusion was reached; at a minimum, it should be clearly documented in light of the above comments.]

2.) ² [It is impossible to ascertain from the Order or its appended documents many important details of the proposed investigation.

a.) Therefore, at a minimum, the Order should require as a first submittal, a project Workplan, a Sampling and Analysis Plan (SAP) (sampling should be conducted), and project Quality Assurance Plan (QAPP), as well as the typical Health and Safety Plan (HASP).

b.) These plans should follow the general 16 point EPA design (QAMS 004,005/80), or more recent Interim Guidance on Data Quality Objectives (DQOs) as routinely accepted by Ecology for hazardous waste investigations.

c.) The potentially impacted parties (including residents in the vicinity) should be given the opportunity to review and provide comment on the Workplan and SAP prior to study initiation.

3.) As described in the May 1997 newsletter, the Order constitutes the scope of work. However, the Order is at best a general concept or approach; it is a legal document, not a detailed scope of work. The scope of work (i.e. Workplan) is necessary to determine what is actually proposed, and if the activities will satisfy the statutory requirements of MTCA, the Clean Water Act and applicable regulations. Ecology should reserve the right to approve the Workplan for compliance before acceptance of the Order, or as a condition of the Order.]²

³4.) [Ecology has indicated that “the purpose of the ground water study is to gain a more complete understanding of the direction and behavior of ground water flows beneath the Airport and to make certain that the contamination that exists beneath portions of the Airport is not a threat to drinking water supply wells or surface water bodies in the area.” Yet, in the Order it is noted that the risks (threats) are “small”. Other Ecology statements indicate that the flow directions are either assumed or unknown. It is not at all clear how risks can be low or small, if flow directions are unknown and potential receptors still include drinking water wells and drinking supply aquifers. Has Ecology altered its Hazard Ranking System? There is the perception that the study is directed to prove a predetermined conclusion as opposed to an open investigation. If evidence exists that the risks are small, it should be documented and appended to the Order. It should then be used as part of the basis for the development of the detailed Workplan. If does not exist, the conclusion should not be included in the Order.]³

⁴5.) [Ecology has indicated that they will agree to a model in conjunction with the Port (or its consultant).

- a.) Ecology should take the lead, and insist upon minimum criteria for the model.
- b.) “Computer model” is not a sufficient specification.
- c.) Given the potential complexities of the ground water at the airport, our Ph.D. hydrogeologist indicates that a three-dimensional model, with wide acceptance (e.g. ModFlow) should be required at a minimum.
- d.) It would be preferable that even a more complex model that also has the ability to evaluate fate (e.g. first order decay products) be considered.]⁴

⁵6.) a.) [Given the potential complexities of the ground water at the site, together with the high visibility of the project and potential impacts of the conclusions, the criteria for the credentials of the individual(s) conducting the study should be increased.

- b.) Typically, for such a study, the lead investigator should be a senior staff person, with at least 10 years experience specifically in hydrogeologic investigations, as they relate to the fate and transport of subsurface contaminants.
- c.) In consideration of the potential litigation and peer review, a Ph.D. in Hydrogeology or closely related field should be given preference. (A registered P.E. requirement is not a particularly relevant specification for this kind of investigation. The R.G. would actually be more useful).
- d.) The lead investigator should also be the primary investigator. In other words, junior staff should not conduct the bulk of the investigation with minor review by the senior

individual. The lead investigator should have at least 35-50% of the total billable hours, especially if the study rests on the interpretation of model results.]⁵

⁶ 7. [The newsletter and portions of the Order reference in passing that the ground water study is comprehensive, yet the vast majority of the text focuses primarily on the AMOA area.

a.) More detail and balance is required for other potential areas of investigation.
b.) The general scope seems to be reversed in sequence. Normally, one would start with a broad overview screening and reduce to specific areas. Here, specific areas are known, but a broad investigation (which could potentially uncover addition areas/issues of concern) is reserved to a future period.]⁶ There is the perception that this is done more as a political measure to satisfy the Port (i.e. delay studies until after runway construction might begin) than as a honest effort to evaluate ground water conditions as they currently exist.

c.) [It is not clear how the historic information will be integrated into the investigation or modeling efforts.]⁷

⁸ 8. a.) [At the present level of detail, the Order fails to recognize or note important historic information that might have a bearing on the study.

b.) For example, the area to the Northeast of the airport (approximately 150-152nd Sts. bounded by 28-30th Aves. So.) had a significant well field, as well as a tower storage/distribution tank that were a major source of water supply for the area from late 1930's or early 1940's to approximately mid 1950's. There were at least 3-4 banks of well locations, with 3-5 wells each. It appears that the wells may have tapped both a relatively shallow aquifer (50-120 ft.), plus perhaps a deeper aquifer (150-250ft.). Virtually all evidence of this well field has been obliterated. However, there is no reason to assume that the aquifer(s) are not still present and viable as a future drinking supply source. These aquifers are potentially hydraulically linked to, or may be a part of the underlying airport aquifer(s). The investigation must consider and evaluate this potential drinking water source.

c.) As another example, a major surface water body directly adjacent to the airport, most commonly known as Lake Evergreen or Evergreen Lake, was completely drained and filled by combined WDOT (SR 518) and airport expansion/development. Several adjacent bogs and wetlands were also filled. Grade levels were radically altered (by as much as several hundred feet in some areas). These activities (which occurred in the mid to late 1960's), undoubtedly had a radical impact on surficial ground water, and ground water recharge.]⁸

⁹ 9.) [There are several important issues regarding the target analytes (contaminants of concern (COCs)) in the AOMA area, which must be addressed:

a.) The chemistry data are missing (either in summary or raw form). These data should be appended; at a minimum the list of analytes screened (target analytes) and means and ranges must be available in an appendix. It is these results that apparently form the basis or drive the entire investigation.

- b.) The focus has been on Jet A and gasoline; other contaminants are noted as present but of lessor (and essentially no) concern, apparently based solely on lower levels of concentration. This is not appropriate. If contaminant X occurs at a concentration 100 times as great as contaminant Y, it does not mean it poses the greater risk. If contaminant Y is 100 times as toxic, X and Y pose equal risk (assuming all other properties being equal). Furthermore, if contaminant Z is present at a concentration that is lower than either X or Y, and it is not acutely toxic, but it is a known carcinogen (e.g. class A1), it may pose the greatest risk by far. The rationale for focusing the effort on Jet A and gasoline (or conversely stated, minimizing other COCs) must be presented.
- c.) Many factors must be considered in determining COCs (such as concentration, toxicity, frequency of occurrence, exposure pathways, persistence).
- d.) The appropriate way to determine the COCs, as well as to define any remedial action levels, is through a risk assessment. (Throughout the newsletter the term “threat” or “potential threat” is used; essentially a synonym for risk). It is consistent with Ecology’s policy and practice to use screening level risk assessments in conjunction with MTCA (and its pre-prescribed action levels). The Order should address this issue, and define the criteria or the mechanism that will be used to develop evaluation criteria.
- e.) It is not clear if both human and ecological receptors were considered. Ecological receptors should also be considered (as supported by the historic spills into the adjacent creeks).
- f.) There is no way to verify if the appropriate analytical protocols were used; for example, most deicing fluids (especially glycol based) require custom analytical protocols. Standard EPA SW 846 or CLP protocols that are typically employed in the supporting analytical laboratories for screening will largely miss these components.
- g.) A similar situation exists for dioxins (dioxin congeners) (EPA Method 8290 or its CLP equivalent is required for sufficiently low detections), low levels of polycyclic aromatic hydrocarbons (PAHs) (EPA Method 8310 is typically required over EPA Method 8270 to reach the sufficient levels of detection), and polychlorinated biphenyls (PCBs) (EPA Method 8080 is generally required over Method 8270).] 9

10.) ¹⁰ The investigation as described in the Order misses or largely ignores several significant potential sources of groundwater contamination. These must be addressed. For example:

- a.) The literature indicates that non-point precipitation runoff associated with tire wear is a major contributor of selected trace heavy metal contamination in surface waters. (This is supported by the historic EPA urban runoff studies conducted in part by researchers at the University of Washington). It further appears that aircraft tire formulations are especially susceptible sources. For years, the runway runoff has infiltrated and recharged the ground water, either directly or through the many unlined collection ditches that once surrounded the field. The material from the tens of thousands of worn aircraft tires has gone somewhere. In addition, there is the significant automobile traffic associated with the normal operation of the airport and the garage.
- b.) The classic studies on PCBs (e.g. The Interdepartmental Task Force study on PCBs in the Environment, 1972 (COM 72-10419); The Oak Ridge National Laboratories literature review on PCBs, 1978 (ORNL/TIRC -78-2); Proceedings of the National Conference on

PCBs, 1976 (EPA 560/6-75-004)) all indicate that PCBs were a major component of aircraft hydraulic fluids for many years. This was later verified by a personal communication with the primary manufacturer of PCBs in the U.S. (Personal communication, R. Kadeg to Dr. Bill Adams, Monsanto Corp., 1988). PCBs are thus commonly found at RI investigations conducted in and around airports. It is not clear if PCBs have been investigated. While they are normally relative immobile in soil, they are very persistent. In addition, the historic spills of gasoline and Jet A would serve to move these contaminants directly to ground water.

c.) The PCB potential is further compounded by the observation that for many years the airport fire department conducted practice drills at various locations in and throughout the perimeter of the airport. These drills often consisted of large fires, with associated billowing black clouds of smoke that could literally be seen for several miles. It has been indicated that all types and kinds of fluids were combusted, often in unlined pits. It is highly likely that off-spec. fuels, used solvents, and drained hydraulic fluids (with PCBs) were all combusted. As is typical with any burn pit, combustion is incomplete (especially when it is doused with water or foam). Residuals had high potential to infiltrate or be flushed to the ground water. The literature clearly documents that a significant source of dioxins is the combustion (especially incomplete or low temperature combustion) of PCBs. In addition, significant levels of carcinogenic PAHs are formed during most all incomplete combustion processes of any organic material, but especially aromatic components (that would be present in the fuels or solvents).

d.) Perhaps the largest potential contaminant source is the jet exhaust (and in the early years piston engine exhaust) from the power-up and take-offs over the years. Nearby residents have historically observed "soot" deposits on their homes. These are likely laden with carcinogenic PAHs and other incomplete combustion products. These components would infiltrate to ground water in a manner similar to contaminants previously discussed. In a recent investigation, we observed significant elevation of trace metals in marine sediments in an embayment just off the edge of a runway (the airport serves a small city). These metal levels have been attributed to the blast of jet exhaust associated with take-off.

e.) It is unknown what pesticides, herbicides, and grass killers may have been applied throughout the years; it is highly likely some were. The typical analytical chemistry screens miss many of the common formulations (i.e. EPA 8150 screens are not often run). This requires evaluation.

f.) The effects from the spills and residuals from the various concrete batch plants (most recently just north of the runways) is unknown, and should be evaluated. Several drainages and surface waters are nearby.] 10

11. [The interaction of the complex surface drainage systems (which have varied in configuration throughout the years), and association of nearby surface waters seems to have not received due attention, in relation to the hydraulic connections to underlying aquifers and perched waters. All of these surface water bodies have received various levels of contamination in a manner similar to that described above. This should be addressed.] 11

Response to comments by Roger Kadeg

Comments were presented in a letter dated June 12, 1997.

Comment #1:

The Agreed Order indicates that the modeling study is done in lieu of a remedial investigation (RI) because a RI is not feasible, well drilling is impossible, and costs are prohibitive. This reasoning is problematic because Remedial Investigations and Feasibility Studies incorporating borings, monitoring wells, and groundwater investigations have been conducted, with Ecology review and approval, for large active airports at military bases in Washington. These RIs indicate that some form of a RI can also be done at Sea-Tac Airport such as at least installing monitoring wells around its perimeter. The evaluation and supporting criteria for the conclusion that a RI can't be done at Sea-Tac Airport should be referenced and documented.

Cost should not be a reason for excluding a RI at Sea-Tac Airport given the abundant resources of the Port of Seattle. The Port must be held to the same level of effort as other large potentially liable persons (PLPs) such as the military and the private sector Fortune 500 companies including those that have already conducted investigations at Sea-Tac Airport.

Response #1:

The mindset of a Remedial Investigation (RI) as used in the Agreed Order was as described in the MTCA (WAC 173-340) which is that a RI “defines the nature and extent of contamination”. Ecology didn't mean to imply in the Agreed Order that a full (RI) of the entire AOMA (in all areas not already covered by RIs in the known MTCA sites) was impossible to do or would be forever precluded. Section II.2. in the draft Agreed Order was amended for clarification and the language now states that a RI of the AOMA (i.e. finding and defining the nature and extent of contamination throughout the entire AOMA) is not practicable “at this time”. The groundwater study is not being done in lieu of a RI, but can be considered as a component of an ongoing RI process at the airport that encompasses numerous investigations for various reasons at different times and locations.

Comparing the issues, problems and costs of doing a full large-scale RI at Sea-Tac Airport with doing a RI at military airports is not valid. Unlike Sea-Tac Airport, where there is a high volume of multiple, independent aircraft operations taking place almost nonstop, military airports are under a single command and control structure, and have a lighter volume of aircraft operations with more “dead time”. Placing monitoring wells at the perimeter of Sea-Tac Airport would hardly accomplish “finding and defining the nature and extent of contamination” and would be nonsensical without first knowing the nature of groundwater flow and contaminant transport.

The comment appears to imply that the cleanup process and requirements are different for “large” PLPs with abundant resources such as the Port, military, and Fortune 500 companies than for “small” PLPs. The cleanup process and requirements as per the

Model Toxics Control Act apply uniformly to all PLPs. The “level of effort” required at a contaminated site is not driven by the resources of the particular PLP, but rather by the circumstances and risks unique to the site. An element of the cleanup process applicable to all is the concept of “practicability” as per WAC 173-340-200, which is the concept that cost can be a factor in making remedial decisions when it becomes disproportional to the environmental benefit derived. Ecology did not mean to imply that a RI of the entire AOMA could not be done simply because costs were prohibitive and the language regarding cost in section II.2. of the draft Agreed Order was changed to more clearly convey the notion that costs “are not warranted” at this time.

Comment #2:

The Agreed Order is a legal document that describes a general concept or approach. The details of the groundwater study should be described in a Workplan, a Sampling and Analysis Plan, a Quality Assurance Plan, and a Health and Safety Plan. These documents should be required submittals of the Agreed Order, should be drafted according to EPA criteria, and be open to public review and comment prior to beginning the study.

Response #2:

The Agreed Order describes the general concept of the groundwater study in Section II (Findings of Fact), and then describes in detail six specific tasks that will be accomplished during Phase I of the groundwater study in Section IV (Work to be Performed). These tasks are described in sufficient detail in the Agreed Order and do not warrant further detailed descriptions via a Workplan, Sampling and Analysis Plan, Quality Assurance Plan, and a Health and Safety Plan particularly since there is no chemical sampling or major field work during Phase I. These documents will be required as appropriate in Phase II of the groundwater study, which includes fieldwork, drilling, and chemical sampling.

Comment #3:

The Agreed Order states that risks to potential receptors are “small” and in other statements that groundwater flow directions are assumed or unknown. These statements are nonsensical because risks, especially to drinking water sources, cannot be known to be “small” if groundwater flow directions are not known. Any evidence supporting the statement that risks to receptors are “small” should be documented and appended to the Agreed Order, and also utilized in developing the Workplan.

Response #3:

The Public Participation Plan and initial Fact Sheet convey the notion that at this time, the risk posed by the known contamination appears to be “small”. Most of the known contamination is petroleum, and the Qva aquifer is the initial aquifer to be impacted and a mechanism for horizontal transport. The Agreed Order states that the groundwater flow direction of the Qva aquifer is known (flow is to the west) in these localized known areas of contamination. The known areas of significant contamination within the AOMA are specified in the Agreed Order in Appendix 1. Specific reports that document numerous environmental investigations that describe groundwater flow and the limits of contamination in each of these areas are on file at Ecology. These reports demonstrate

that the current, known risks to receptors appear to be “small”. The information is much too voluminous to be appended to the Agreed Order however, but it is open to public review at Ecology’s Northwest Regional office in Bellevue.

Comment #4:

Rather than collaborate with the Port, Ecology should dictate the criteria for the model and specify it in the Agreed Order. A widely accepted three-dimensional model such as “Modflow” should be used and the model should include the ability to evaluate the fate (first order decay products) of contaminants.

Response #4:

Ecology prefers that formal actions are negotiated, collaborative processes rather than dictatorial processes if possible. The criteria for the model will be specified in the Phase I report. The modeling software for the groundwater flow model has been selected at this time and it is the Modflow three-dimensional package recommended in the comment. The Modflow software was selected because it has been widely used and documented for a number of years. An appropriate software package compatible with the Modflow software will be selected to describe the behavior of contaminants in the aquifers.

Comment #5:

The criteria for the credentials conducting the study should be increased so that the lead investigator is a Ph.D in hydrogeology and has at least 10 years experience specifically conducting hydrogeologic investigations including the fate and transport of subsurface contaminants. Furthermore, the lead investigator should personally conduct the investigation at a level of at least 35 – 50% of the total billable hours.

Response #5:

Comment noted. The consultants used to conduct the technical aspects of the groundwater study will have appropriate technical credentials and experience, which will be noted in the Phase I report.

Comment #6:

The Agreed Order and associated newsletter describe the groundwater study as being “comprehensive” but the study focuses only on one area of Sea-Tac Airport, the AOMA. To focus on a known specific area of concern (the AOMA) and reserve broadening the investigation that could reveal other areas of concern until later is backwards. The groundwater study should instead start with a broad investigation to reveal all specific areas of concern and then focus on those areas.

Response #6:

Part 1 of the Responsiveness Summary provides response to this comment.

The comment reflects the common public paradigm that sources and releases of contamination are ubiquitous throughout the entirety of Sea-Tac Airport and there are potential areas of concern that must be investigated airport wide. It is factual, historical information that the facilities supporting aircraft operations (fueling and maintenance)

and other facilities utilizing hazardous substances have been and are currently located within the AOMA of the airport. Given the volumes and uses of hazardous substances associated with these facilities, it is releases from these facilities in terms of volume and duration that were capable of impacting the regional water table (Qva aquifer) in the hydrogeological environment of the area. In response to this common public paradigm that the entire airport could be contaminated, the informational research done to locate potential historical sources of contamination will include sources of contamination within the airport outside the AOMA considered capable of impacting the identified receptors.

Comment #7:

It is not clear how the historic information will be integrated into the investigation or modeling efforts.

Response #7:

Part IV.1.(a),(b),(c),(d) in the Agreed Order indicates the purposes and uses of historical information, which are:

(a) The geological logs from perhaps hundreds of wells and borings that were done over the years within the airport and surrounding area will be researched and compiled. Hydrostratigraphic cross sections of aquifers and aquitards will be interpreted and constructed from these data. The data will be interpolated and interpreted in areas not covered by actual geological data. A digital three-dimensional grid will then be constructed to represent all of this hydrostratigraphic data in numeric form that the computer software package (Modflow) will utilize.

(b) Historical facilities that significantly utilized hazardous substances during past years will be identified and considered possible sources of groundwater contamination, and contaminant transport will be considered in the model from the locations of these facilities.

(c) A representative set of wells will be selected from wells drilled during past years at the known MTCA sites in the AOMA to accurately determine the seasonal flow directions of the Qva aquifer throughout the source area of contamination (the AOMA) for use in the modeling.

(d) Historical information will be researched to determine the locations of any operational private drinking water supply wells that could be potential receptors of contamination originating within the AOMA of the airport.

Comment #8:

The Agreed Order fails to recognize historic information the might have bearing on the groundwater study. Specifically it ignores a former water-supply well field that operated during the 1940s and 1950s, and a lake that was drained and buried in the 1960s during road and airport construction, both located northeast of the airport.

Response #8:

The Agreed Order states only that historical information will be researched, so it is difficult to understand how the commentor knows what historic information failed to be recognized since the research isn't complete. Any historical information relevant to the objectives of the groundwater study, i.e. to evaluate risk to public and private drinking water supply wells and surface waters possibly posed by contamination in groundwater originating within the AOMA, will be recognized and considered.

Comment #9:

The Agreed Order fails to address several important issues regarding the contaminants of concern (COCs) within the AOMA, which are:

- (a) There is no contaminant chemistry data provided yet these data are driving the study. All chemistry data including statistical analyses must be appended to the Agreed Order.
- (b) The study focuses on Jet A and gasoline only and ignores potential risks posed by other contaminants because they exist at lower concentration levels. Other factors such as toxicity and carcinogenicity must also be considered to determine if the other contaminants could pose risks. The rationale for focusing only on Jet A and gasoline must be presented.
- (c) A risk assessment, which considers all factors regarding contaminants such as concentration, toxicity, carcinogenicity, frequency of occurrence, exposure pathways, persistence, and risk to ecological receptors is the appropriate way to determine the COCs and should be required.
- (d) The analytical protocols used to derive the contaminant chemistry data are not provided, but should be to verify that appropriate testing was done particularly regarding deicing fluids, dioxins, polycyclic aromatic hydrocarbons (PAHs), and polychlorinated biphenyls (PCBs).

Response #9:

- (a) All the historical chemistry data that has been acquired at Sea-Tac Airport is located in very many cleanup reports from many sites and locations during the course of many years. Ecology is not aware of any compilation of all these historical data and it is perhaps questionable what a singular presentation of all these data would mean. In any case, all the historical chemistry data that has been acquired at the airport will not be appended to this Agreed Order. Chemistry data from specific site locations utilized in the contaminant transport modeling will be presented in the Phase I report. Chemistry data acquired during Phase II activities will be presented in the Phase II report.
- (b) Section II.2. of the Agreed Order describes the kinds of contaminants that have been discovered in the known areas of contamination (the MTCA sites), and their relative abundance. There is no language or implied intent in the Agreed Order that states jet fuel and gasoline are established as the only contaminants of concern and all other

contaminants will be ignored. It is the intent of the Agreed Order to address risk of all appropriate contaminants to the identified receptors such as solvents for example, which have had wide use in the AOMA.

(c) The purpose of the Agreed Order is to evaluate risk but it cannot be considered as equivalent to a formal risk assessment process for a given contaminated site as described in the comment that it should be. The Agreed Order only considers risk associated with two exposure pathways and one means of contaminant transport i.e. groundwater flow. Contaminants can be conveyed to surface waters by transport means such as spills and surface water runoff other than groundwater flow, but contaminants can only be conveyed to drinking water wells through groundwater flow. Typical contaminants that have potentially been released at the airport will be determined considering information on historical and current facilities, past and current uses of hazardous substances, and chemical data from past investigations. The COCs relevant to this Agreed Order will be those that can reach the Qva aquifer in the first place and then are most mobile and persistent in groundwater.

(d) The analytical testing protocols for the contaminants of concern (COCs) relevant to the purpose and intent of the Agreed Order established during Phase I of the groundwater study will be presented as part of the proposed sampling activities for Phase II of the groundwater study. All of the analytical testing protocols used in deriving the entire body of historical chemical data at the airport will not be provided.

Comment #10:

The Agreed Order misses or ignores the following significant potential sources of groundwater contamination at the airport, which must be addressed: (a) Contaminants in material from aircraft and automobile tire wear at the airport. (b) PCBs in aircraft hydraulic fluid and from “burn pits” where fires were set for practice fire drills. (c) Dioxins derived from the “burn pits”. (d) Contaminants in jet exhaust. (e) Contamination derived from pesticides and herbicides that may have been used at the airport. (f) Contaminants found in releases from concrete batch plants.

Response #10:

Comment noted. Consistent with the intent and objectives of the Agreed Order, significant sources of contamination that could impact permanent groundwater and the potential local receptors via groundwater flow will be identified and considered as appropriate. The groundwater study will not address contaminants that are exclusive to soils or runoff to surface waters.

Comment #11:

The Agreed Order should address the interactions of the complex drainage systems at the airport and association of nearby surface waters in relation to the hydraulic connections to underlying groundwater.

Response #11:

The comment is vague and it is not clear why the very extensive work it would take to consider the interactions, associations, relations, and connections mentioned is warranted or why this information is specifically relevant to the Agreed Order. The comment is perhaps suggesting that all the mechanisms and pathways by which contaminants can reach the underlying groundwater must be known. For purposes of the Agreed Order it is necessary to know that contaminants have already reached the underlying groundwater (the Qva aquifer) in known areas of contamination and it will be assumed contaminants have reached the Qva aquifer in potential historical areas of contamination.

The Agreed Order does state that potential preferred pathways of contaminant transport would be considered in the groundwater study. Perhaps that information is relevant to the comment.